

CIVIC AND NATIONAL PREPAREDNESS

OFFICIAL ORGAN
UNION OF CANADIAN
MUNICIPALITIES



THE CANADIAN MUNICIPAL JOURNAL

MAY
1917

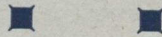
A Review of Canadian Citizenship



A Municipal Inventory of Canada's Resources and the Opportunities for Their Development, so that the Communities Might Benefit Industrially and Socially, and Thus Better Fit Themselves to Meet After War Conditions

Portland Cement

A National Product with a
National Distribution



THE growth of the **CEMENT INDUSTRY** in Canada in the last 25 years has been remarkable. So many and so varied are the uses of Cement that the per capita consumption has increased almost 400%.

The farmer uses Cement for his foundations, fence posts, silos, watering troughs, barns, etc., and as a result the improvements he makes on his farm are permanent improvements—his farm is made more valuable in every way.

The invention of reinforced concrete makes its use possible and profitable in all heavy foundations, bridge-abutments, retaining walls, dams, breakwaters, buildings, grain elevators, etc. Reinforced concrete successfully competes with wood, stone, and steel in price and gives structures that are more rigid, permanent and positively fire-proof.

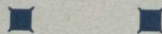
Within the past few years tax payers have been coming to see the folly of the old-style stone road and are demanding Permanent Highways of Concrete.

Engineers are specifying concrete for municipal improvements, such as construction of sewers, streets, sidewalks and bridges.

There is a very good distribution of Canada Cement throughout Canada, Mills being located as follows:

3 Mills in Quebec
6 Mills in Ontario
1 Mill in Manitoba
2 Mills in Alberta

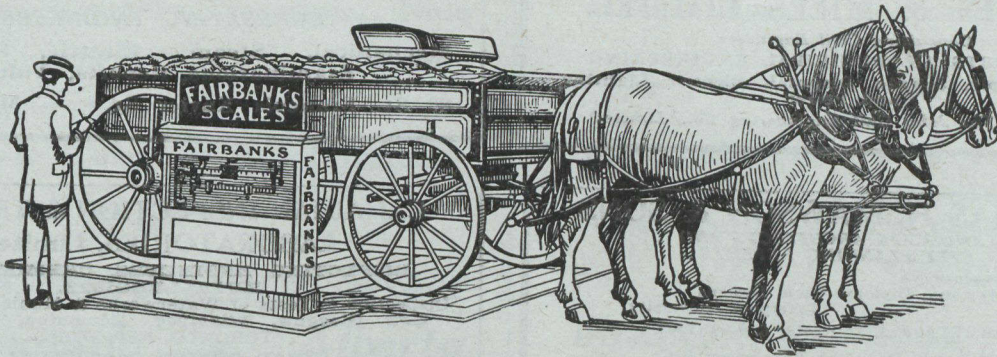
These mills are so situated in the provinces that cement can be shipped to almost any point in Canada, with the exception of the North West Territory within the course of a week.



Canada Cement
Co., Limited

Herald Building, Montreal





Fairbanks Scales

A scale in your town will save the corporation many dollars.

It will check goods so you know you are getting what you pay for.

It will serve to settle many disputes between local firms.

A Fairbanks Scale with eighty years excellent reputation behind it will be a standard of weights for the whole community.

Insist upon a scale that will give you the accurate weights and long life that a Fairbanks always gives.

Write for Prices on Fairbanks Wagon Scales

The Canadian Fairbanks-Morse Co., Limited

84-98 St. Antoine St. - MONTREAL, Que.

St. John,
Quebec,
Montreal,
Ottawa,

Toronto,
Hamilton,
Windsor,
Winnipeg,

Saskatoon,
Calgary,
Vancouver,
Victoria.



THIS WILL INTEREST YOU

**EMPLOYERS
OF**

LABOUR

should have
among their
Employees

TRAINED

FIRST AIDERS

capable of render-
ing assistance

**IN CASE OF
ACCIDENT**

POLICE DEPARTMENTS
FACTORY MANAGERS
MUNICIPAL FIRE
DEPARTMENTS
FARMERS
FISHERMEN
LUMBERMEN
FIRE RANGERS
MINE MANAGERS
HUNTERS
ANGLERS

**EVERY
ESTABLISH-
MENT**

Should have a
supply of

**FIRST AID
EQUIPMENT**

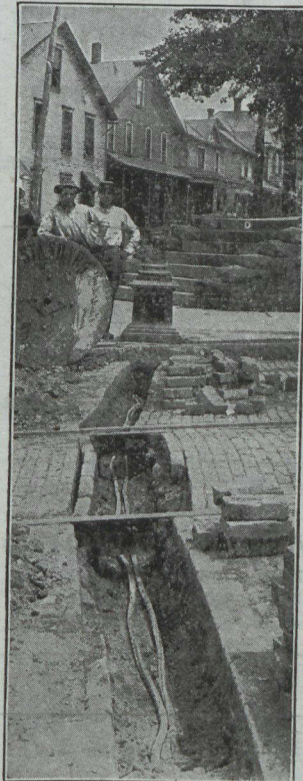
for use in

**CASES OF
EMERGENCY**

Always have a St. John
Ambulance First Aid Box
ready in case of emer-
gency.

Price, \$5.00; smaller size,
\$3.50. Supplied by the
Canadian Branch of The
St. John Ambulance As-
sociation,

14-15 Castle Building,
Ottawa, - - - Ont.



Laying STANDARD Steel-Tape-Armored Cable Across a Street.

A 50 Per Cent Saving

in the cost of installing
underground electric
cables is worth con-
sidering these days. A
cable which can be laid
directly in a trench in
the ground without con-
duits may solve the in-
stallation problem be-
fore you.

STANDARD

**Steel-Tape-Armored
Cables**

are designed for this
class of service and
have in many cases
shown a 50 per cent
saving in installation
cost as compared with
single runs of lead-cov-
ered cables laid in con-
duits.

*Write for Bulletin 680
which gives complete in-
formation.*

Standard Underground Cable Co.

of Canada, Limited

Hamilton, Ont.

Montreal

Hamilton

Winnipeg

Seattle

WINNIPEG CALGARY
HADDIN & MILES LIMITED
Consulting Civil Engineers
 SPECIALISTS IN MUNICIPAL ENGINEERING
 Water Supply, Sewage Disposal, Electric Lighting
 and Power
Formerly The John Galt Engineering Co., Limited

R. A. ROSS & CO.
CONSULTING ENGINEERS
 Mechanical, Steam, Electric, Hydraulic,
 Examinations, Reports, Valuations
 80 St. Francois Xavier St. - MONTREAL

THOMAS H. MAWSON & SONS
*LANDSCAPE ARCHITECTS AND
 - CITY PLANNING EXPERTS -*
 Canadian Representative:
 J. W. MAWSON, Diploma Civic Designs
 Liverpool University.
 Also at London, Lancaster & New York
 1100 Rogers Building, Vancouver, B.C.

**CANADIAN INSPECTION & TESTING
 LABORATORIES, Limited**
**INSPECTING ENGINEERS, CHEMISTS AND
 METALLURGISTS.**
 Inspection & Tests of Waterworks & Municipal Supplies
 New Glasgow, Winnipeg, Edmonton, Vancouver
 TORONTO, NEW YORK
HEAD OFFICE—MONTREAL.

T. Aird Murray, T. Lowes,
 M. Can. Soc. C. E. C. E.
AIRD MURRAY & LOWES
CONSULTING ENGINEERS
 Reports, Plans, Estimates, Specifications, Surveys, etc., for
 Municipal Sewerage, Water Supply, Sewage Disposal & Water
 Purification. Analyses of Water and Sewage Effluents.
 186 King Street West - TORONTO

R. O. WYNNE-ROBERTS
Consulting Engineer
 57 Adelaide St. East, TORONTO
 Water Supply, Sewerage, Sewage Disposal, Civic and
 General Engineering, Arbitrations, Investigations, Valua-
 tions, Reports, etc.

T. LINSEY CROSSLEY
 A.M. Can. Soc. C.E.
 Consulting Chemist Chemical Engineer,
 Asphalt Paving and Inspection
 Municipal Chemistry
 318 LaGauchetiere Street, West 43 Scott Street,
 MONTREAL TORONTO

Walter J. Francis, C.E., Frederick B. Brown, M.Sc.
 M. Can. Soc. C.E. M. Can. Soc. C.E.
 M. Am. Soc. C.E., Mem. Am. Soc. M.E.,
 M. Inst. C.E. Mem. A. I. E. E.
WALTER J. FRANCIS & CO.
CONSULTING ENGINEERS
 Head Office—232 St. James Street, MONTREAL
 Long Distance Telephone—Main 5643
 Cable Address—"WALFRAN, MONTREAL."—Western Un. Code

*Phone 118 Pointe Claire. A.M. Can. Soc. C.E.
GEORGE REAKES, C.E.
CONSULTING ENGINEER
 Expert on Concrete, Asphalt, Tarvia and Macadam Roads
 Inspections and Reports Made
Beaconsfield, P.Q.

R. S. & W. S. LEA
CONSULTING ENGINEERS
 Water Supply and Purification, Sewerage and Sewage Dis-
 posal, Water Power Development
 Tel. Long Distance Uptown 6740-41
 New Birks Bldg. MONTREAL

Darling Brothers Limited
 ENGINEERS AND MANUFACTURERS
MONTREAL CANADA
 Branches: Toronto, Winnipeg
 Agents: Halifax, Calgary, Vancouver
 Pumps for any service. Steam Appliances of every kind.

BURNETT & McGUGAN
 CIVIL ENGINEERS
 DOMINION AND B. C. LAND SURVEYORS
 PLANS, SURVEYS, REPORTS.
NEW WESTMINSTER,
 P.O. Box 107 British Columbia

W. D. Lighthall, K.C., M.A., F.R.S.L., &c. C. A. Harwood, B.C.L.
 Cable Address - - "LIGHTHALL"
LIGHTHALL AND HARWOOD
BARRISTERS, SOLICITORS, ADVOCATES, &c.
 Chambers - - QUEBEC BANK BUILDING
 Place d'Armes - - - - MONTREAL

A. L. McCULLOCH, M. C. Soc. C.E.
CONSULTING ENGINEER
 Hydro-Electric Power Installation
 Water-Works, Sewerage and Sewage Disposal
 Examination. Plans, Estimates & Reports
NELSON, B.C.

Crushed Cut
 Stone Stone
BRICK,  SAND.
 T. A. MORRISON & CO., 204 St. James St., Montreal

EDWARD C. CLEMENT
 ATTORNEY AND COUNSELLOR AT LAW
 Solicitor of Patents
ELECTRICAL EXPERT
 MCGILL BUILDING - - WASHINGTON, D.C.

Town Secretary-Treasurer. Nine years' experience. Good Preferences, and Bonds. Position desired in Town or Rural municipality of fair size.

**T. S. 9929-115th. Street
Edmonton - Alberta**

**CRIMINAL LAW OF CANADA
GENERAL INDEX TO THE CRIMINAL LAW OF
CANADA.**

By Walter Edwin Lear, of Osgoode Hall, Barrister-at-Law.

6+214pp. Demy 8vo., buckram. Toronto. 1910.

Can be used with the Revised Statutes of Canada and all published books on the Criminal Code.

PRICE, \$3.00. POST PAID.

DOMINION LAW BOOK COMPANY
CONFEDERATION LIFE BUILDING,
TORONTO, ONT.

DOMINION BRIDGE COMPANY, Ltd.

Head Office and Works:
MONTREAL, P.Q.

Branch Offices and Works:
Toronto, Ottawa, Winnipeg

**ENGINEERS, MANUFACTURERS & ERECTORS OF STEEL STRUCTURES
CAPACITY - 135,000 TONS**

RAILWAY AND HIGHWAY BRIDGES
SWING AND BASCULE SPANS
BUILDINGS OF ALL KINDS
HEMISPHERICAL BOTTOM AND OTHER TANKS
TRANSMISSION POLES AND TOWERS

RIVETED PIPE, CAISSONS, BARGES
TURNABLES, ELECTRIC AND HAND POWER CRANES
HOISTING APPLIANCES, LIFT LOCKS
HYDRAULIC REGULATING GATES, ETC.
GEAR CUTTING AND GENERAL MACHINE WORK

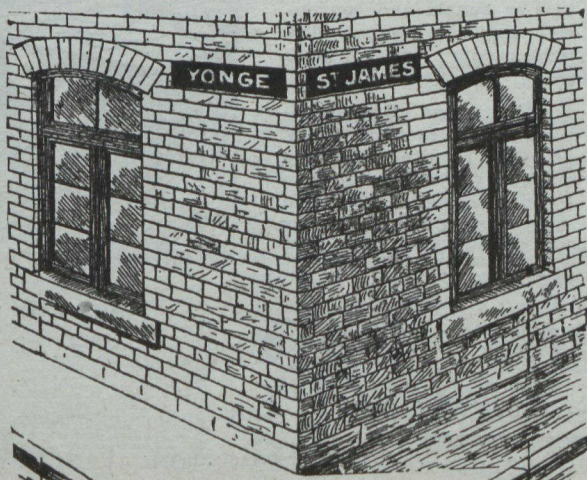
Large Stock of Standard Structural Material at all Works

The Canadian Bridge Co., LIMITED

WALKERVILLE, ONT.

Manufacturers
- - of - - **Railway and Highway Bridges**

Locomotive Turn Tables, Roofs, Steel Buildings and Structural Iron Work
of all descriptions



The Principal Cities in Canada
are using our

**Enamel Steel Street Names
and House Numbers**

THEY LAST A LIFETIME

MADE IN CANADA BY

The THOS. DAVIDSON MFG. CO., Limited

Selling Agent, **J. N. WARMINTON,**

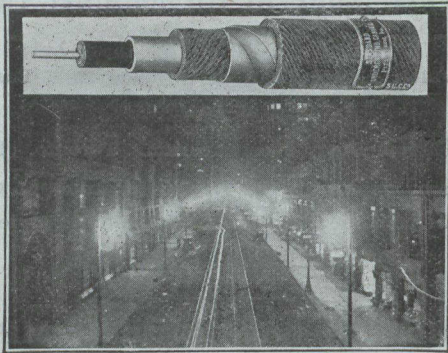
207 St. James St.,

Montreal, Que.

Write for prices and samples

Can a Stranger find his way around your City or Town
without difficulty?

Are all Streets named and houses numbered up to date?



An Economical Installation

There are many places where it is good engineering practice and also real economy to install electric cables for light, power, telephone or fire and police alarm service in the ground without conduits.

**STANDARD
Steel-Taped-Ar mored Cables**

have given many years of satisfactory service installed in this manner, and in many cases their use has resulted in a saving of 50% as compared with single runs of cables in conduits.

Write our nearest office for Bulletin 680 giving complete information.

**Standard Underground Cable Co.
of Canada, Limited**

Hamilton, Ont.

Montreal, Hamilton, Winnipeg, Seattle.

Milton Hersey Co.,

Montreal — Limited — Winnipeg
84 St. Antoine St. 257 Portage Avenue

**Inspectors Chemists
Engineers**
Specialists in Municipal Engineering

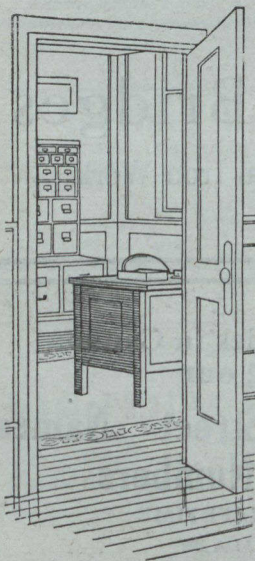
PAVING

WE WILL FURNISH YOU A COMPLETE PAV-
ING SURVEY
OUTLINE A MUNICIPAL PAVING POLICY
PREPARE RIGID AND ECONOMICAL SPECIFICA-
TIONS
DIRECT THE CONSTRUCTION OF THE WORK
MAKE COMPLETE TESTS AND INSPECTIONS
INSTALL A SYSTEM OF UNIT COST ACCOUNT-
ING CONTROL
DO THE WORK FOR YOU—IF YOU WISH

Experts in Street & Road Paving, and Paving Economy
Do not Waste Your Paving Funds—Consult us
We will advise you what to do—Tell You Why—
and Show You How

CHARLES A. MULLEN, Director of Paving Dept.
NEW YORK—198 Broadway

Office Specialty Filing Devices
Simplify Office
Work



Office Filing Devices.

To do more work at your desk in the least time you must establish efficient working conditions.

Have a clear desk top, one or two Desk Trays for current papers coming to and going from your desk; a Deskholder for keeping track of important engagements, and Filing Drawers and conveniences built in your desk.

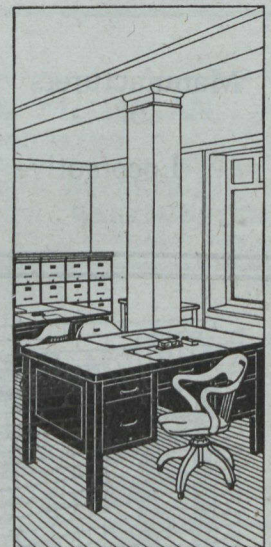
The Office Specialty Efficiency Desk is an entirely new desk, built with new features that encourage Desk Efficiency.

Ask for Folder No. 1835 which gives complete details of this Desk.

* To find a paper in the right place it must be filed right in the first place.

Every business man needs a System for filing records that is simple and convenient so that he can find his papers and records quickly.

Thirty years of manufacturing experience and study of Filing requirements have enabled Office Specialty to meet every office condition with efficient Filing Systems and Equipment. Put your Filing problem up to Office Specialty.



Efficient Filing Systems.

**Made in
Canada**

THE OFFICE SPECIALTY MFG. CO.
LIMITED

**Maker to
User**

Home Office and Factories — NEWMARKE1, Can.

FILING EQUIPMENT STORES:

TORONTO MONTREAL OTTAWA HALIFAX WINNIPEG REGINA EDMONTON VANCOUVER

Alphabetical Index of Advertisers

Page	Page	Page
American Bank Note Co. 175	Dominion Law Book Co. 147	Northern Electric Company Front Cover & 148
Ames, A. E., & Co. Cover 4	Dominion Securities Corporation. 170	Office Specialty Mfg. Co., Ltd. . . 148
Bank of Montreal 175	Francis, Walter J. & Co. 146	O'Hara & Company, Ltd., H. . . . 170
Burnett and McGuigan 146	Haddin and Miles 146	Paterson Mfg. Co., Ltd. 152
Babcock and Wilcox Cover 2	Hanson Bros. 171	Pedlar People Cover 4
Burgess, C. H. & Co. 173	Hersey, Milton & Co., Ltd. . . . 148	Phillips Electric Works, Eug. F. . . 151
Brent, Noxen & Co. 174	Imperial Bank of Canada 176	Roberts Wynne, R. O. 146
Canada Bond Corporation 173	Jarvis & Co., AE 169	Ross, H. J. 175
Canada Cement 150	Joyner, Winter & Co., Ltd. . . Cover 2	Ross & Company, R. A. 146
Canadian Bank of Commerce . . 176	Lea, R. S. & W. S. 146	Royal Bank of Canada 176
Canadian Bridge Co., Limited . . 147	Lesperance, A. P. 175	Royal Securities Corporation . . . 172
Canadian Fairbanks-Morse, Ltd. . 145	Lighthall and Harwood 146	Reakes, George 146
Canadian Inspection and Testing Laboratory 146	London Concrete Machinery Co. Cover 3	Standard Underground Cable Co., of Canada 145-148
Carritte-Paterson Mfg. Company 152	Mawson & Sons, Thos. H. 146	Stark & Company, N. B. 174
City and District Savings Bank . . 175	McCulloch, A. L. 146	St. John Ambulance 145
Clement, E. C. 146	McLaren Belting Co., The J. C. Cover 3	Tarvia 152
Crossley, T. Linsey 146	Merchants Bank of Canada . . . 176	Trussed Steel Concrete Co. Cover 2
Daly and Co. 172	Morrison & Co., T. A. 146	Warmington, J. N. 147
rling Bros. 146	Murray, Aird & Lownes 146	Wood, Gundy & Company . . . 169
Davidson Mfg. Co., Limited . . . 147		Wettlaufer Bros., Limited . . Cover 2
Dominion Bridge Co., Ltd. 147		



The Electric MAN-TRAP

A criminal cuts his chance of a get-away down to nearly zero when he goes up against this new improvement in Police Signal Apparatus. He might as well put his foot in an automatic trap as try to beat a good Police Department that employs the



May 1917
 The Westmount News
POLICE SIGNAL SYSTEM PROVES SUCCESSFUL
 That the local police signal system is a most useful accessory to the local force, was proved recently when constable Gorman made the sensational capture of Edward Monaghan who was found guilty of a new violation of the law. The man, who was the victim of the theft, phoned the police office giving a description of the man who had just taken his purse. Inside of three minutes this description had been phoned to every constable on beat. At 11 o'clock the man had been captured and was locked in the station cells.
 All this through the signal system, which was installed in 1912 by the Northern Electric Co. It comprises twelve boxes at various points throughout the city. Each box is equipped with a telephone, a light and a bell.
 Each man rises up headquarters every time he passes a box. In the course the reader regards the year, month, day, time and number of the signal on the police office.

Northern Electric Gamewell Police Alarm System

He needs an hour for his get-away - this system gives him about three seconds. Because not only can the patrolmen call the Station but the station calls all the patrolmen. **Twice as efficient as the old systems.**

Write our nearest house for full particulars.

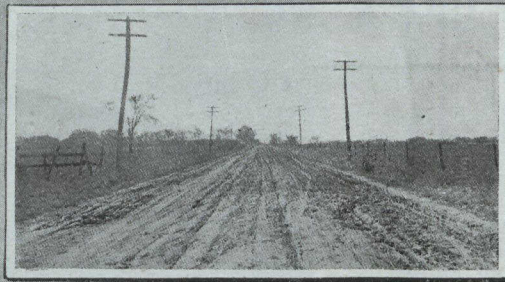
Northern Electric Company

LIMITED

**Montreal
Halifax,**

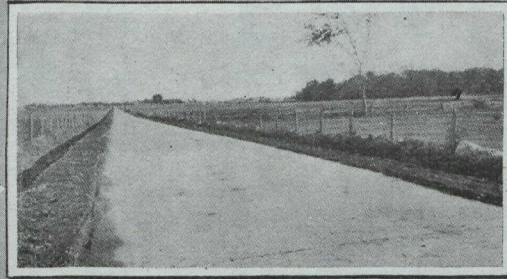
**Winnipeg,
Regina,
Calgary,**

**Toronto,
Vancouver**



The Road
of the Past

The Road
of the Future



Let's Make it "The Road of To-day"

Why wait? Why delay the righting of this great wrong? Every poor road in Canada directly affects the welfare of our Country—and every individual Canadian. Every rock and rut in the old-style road is a menace—an obstacle to progress. Every uneven surface in it represents waste of taxpayers' road money. Every bit of "rough going" in it is a source of so much needless wear-and-tear upon motor cars and trucks and vehicles in general. Consider in contrast.

Permanent Highways of Concrete

Our photographs show a typical, old-style road—the road of the **Past**—and alongside it, a typical Concrete Highway—the Road of the **Future**.

We say: "Let's have those Concrete Highways to-day—in the immediate present—not in the dim and distant future." "But," you say: "What have I to do with it? How can I help?"

Listen. The surest way for us to have the right kind of roads—not just here and there, but all over Canada—is for everyone to "boost" for them.

And you cannot intelligently "boost" for Concrete unless you

have the facts. They are contained in our Concrete Road Books, copies of which will be sent to you free of all charge if you'll send a post card to us, asking for them.

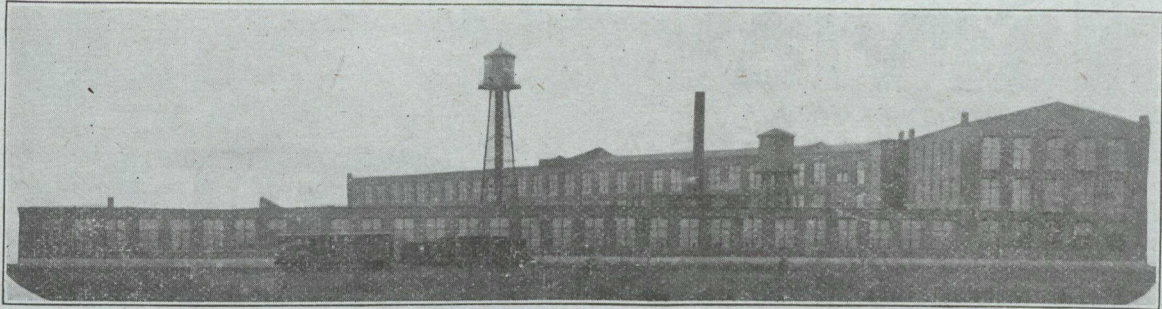
We have gathered fact upon fact. Facts that account for Concrete's superiority—facts to support every claim for Concrete—facts as to its freedom from "ruts" and "waves"; its permanence; its low maintenance cost.

We'll have to do some energetic boosting for Concrete, if we are to have a properly-paved Canada. But first let us get the facts.

Write for them, to

Canada Cement Company, Limited 9 Herald Bldg.
MONTREAL

Concrete for Permanence



Factory: Montreal

Eugene F. Phillips

WIRES AND CABLES

For Telephone, Telegraph, Power, Railway and Electric
Light Installations

The Eugene F. Phillips Factory at Montreal is equipped with every
modern device for making wire and cable

More than a quarter of a century of good service has
built up a reputation of which we can well be proud.

Only the very best materials enter into a Phillips cable—
pure manilla paper, special vaseline compounds, pure new
lead, the finest Para rubber, Italian silks, Sea
Island yarns, etc.

We are as careful in our workmanship and processes as in
the selection of our materials. All moisture is drawn off our
weatherproof cables by vacuum; all lead-covered cables
are submitted to a water test for 24 hours before ship-
ment; the paper insulation is dried under vacuum before
being impregnated; the bare wire is annealed under
vacuum; in other words, every process is thought out with
the greatest care and done by the most skilled workmen.

LOW AND HIGH TENSION

UNDERGROUND CABLES

Armoured Cables for Street Lighting
Paper-Insulated, Rubber-Insulated, and Lead-Covered Cables
manufactured to any specification

Eugene F. Phillips Electrical Works, Limited

Head Office and Factory, MONTREAL

Branches: Toronto, Winnipeg, Regina, Calgary, Vancouver

Tarvia

Preserves Roads
Prevents Dust-



The above illustration shows the spraying of hot "Tarvia-X."
The view in the circle is the finished road. It is durable and dustless.

Have You a Good-Roads Program?

MOST municipal engineers in the large centers have what they call a "Road Program"; that is, the plan for all the streets and roadways within their jurisdiction covering from three to five years or more in the future.

In the smaller cities and towns such a paving program is occasionally prepared by outside consulting experts.

They come in and make scientific studies of the traffic on various streets—the grades, the kind of materials that are available, etc.

Then they lay out a complete scheme calculated to keep the road department working for many years ahead towards a well-defined objective of a perfectly-paved town.

More frequently, however, no program is followed and roads are built and maintained by rather loose and costly methods.

Every town, no matter how small, ought to have a definite road program.

Every county ought also to have one. Roads should not be built in a patch-work, haphazard fashion, for the only result of such a policy is stretches of good roads interspersed with stretches of bad roads.

As a chain is no stronger than its weakest link, so a road is only as passable as its poorest parts.

Therefore, alternating **good** and **bad** roads are a costly abomination to all who travel over them and all who pay taxes for their construction and maintenance.

Our Service Department has persuaded many towns to work out a systematic road policy; because we have been able to demonstrate that great sums of money can be saved by so doing.

A system of tarviated macadam—that is to say, macadam that has been bonded with Tarvia to preserve the surface and make it automobile-proof — is an almost indispensable part of every Good-Roads Program today.

Tarvia roads are not only low in their first cost, but exceedingly low in maintenance cost.

Once a town or city adopts the policy of building Tarvia roads it rarely goes backward, but the mileage is increased from year to year.

The result of such a policy is a town where the roads are dustless and clean, the property values advancing, the road

tax low and the taxpayers enthusiastic believers in and boosters of Tarvia.

There are several grades of Tarvia and a dozen methods of using the product. We should be glad to mail you an illustrated booklet showing Tarvia roads all over the Dominion that are giving the maximum of service and satisfaction at a minimum cost.

Kennedy Road
Scarboro Tp., Ontario,
York County Highway Board

Special Service Department

This company has a corps of trained engineers and chemists who have given years of study to modern road problems. The advice of these men may be had for the asking by anyone interested. If you will write to the nearest office regarding road problems and conditions in your vicinity, the matter will have prompt attention.

THE PATERSON MANUFACTURING COMPANY LIMITED

MONTREAL

TORONTO

WINNIPEG

VANCOUVER

THE CARRITTE-PATERSON MANUFACTURING CO., LIMITED

ST. JOHN, N. B.

HALIFAX, N. S.

SYDNEY, N. S.

THE CANADIAN MUNICIPAL JOURNAL

SUBSCRIPTION RATES
 City of Montreal and United States \$1.25
 Canada, Great Britain and Countries in Postal Union \$1.00

Published Monthly by
The Canadian Municipal Journal Co., Limited
 HARRY BRAGG - - - - - President
 FREDERICK WRIGHT - - - - - Editor
 All communications to be made to Canadian Municipal Journal
 CORISTINE BUILDING, MONTREAL
 Telephone Main 4362.

Any article appearing in these pages may be reproduced provided full credit is given to the Journal.

Although the Canadian Municipal Journal is the Official Organ of the Union of Canadian Municipalities and other bodies yet these are not responsible for any other matter published in its columns than what in each article or itself is stated to be authorized by either of these bodies

Official Organ of the Union of Canadian Municipalities

"Municipal from cover to cover"

Circulates in every city, town and village

VOL. XIII.

MAY, 1917

NO. 5

CONTENTS.

Government Telephones	154	Alderman L. Boyd	161
Our Preparedness	154	Municipal Accounting	162
Good Roads Convention	155	Municipal Savings Bank	164
Earning Power of a Municipal Tramway	155	Contributing to Society	165
Long and Short Ballots	155	Oxy-Acetyline Welding	166
High Cost of Living (Mrs. Henderson)	156	Risks of Street Cleaning	167
Affairs in British Columbia (Jack Loutet)	157	Municipal Taxes (John Perrie)	168
Civic Affairs in Manitoba	158	Research Bureau and the Council	169
Civic Affairs in Alberta	159	Noval Plan for Financing Roads	172
Government Telephones in Manitoba (W. D. Lighthall)	160	Uniform Municipal Statistic	170
Vital and Municipal Statistics	161	Paving Economy	174

PRESIDENT OF U. C. M. BECOMES CHAIRMAN OF GRAIN COMMISSION.

We congratulate Alderman Leslie Boyd, K.C., of Montreal, and President of the Union of Canadian Municipalities on his recent appointment to the Chairmanship of the Grain Commission of Canada in succession to Professor McGill. Mr. Boyd goes to his new sphere of activity with a large knowledge of men and events which will stand him in good stead in dealing with the many problems that effect the grain trade — problems which require not only a legal training but tact and in this the new Commissioner is specially qualified.

Mr. Boyd is not the first president of the Union of Canadian Municipalities to succeed to a responsible public office. Six of his predecessors are today occupying public positions of trust. Sir Adam Beck, of Hydro-Electric fame, was president of the Union in 1904 when he was also mayor of London and Mr. Justice Chisholm, of the Nova Scotia High Court, occupied the presidency in 1910 while mayor of Halifax. The Deputy Chairman of the Railway Commission (Mr. D'Arcy Scott) was president in 1905 when mayor of Ottawa; Mr. H. Laporte, now of the Imperial Munitions Board is an ex-president and ex-mayor of Montreal, and so is Mr. L. A. Lapointe, now a member of parliament, who for years was leader of the city council of Montreal. One of the most successful presidents of the Union was Mr. Sanford Evans in 1909 when mayor of Winnipeg. Mr. Evans is now Chairman of the Georgian Bay Commission.

Mr. Boyd is succeeded in the presidency of the Union of Canadian Municipalities by Dr. R. W. Stevenson, Mayor of London (Ont.), the first Vice-President.

A LESSON FROM CAPETOWN.

We recently received the annual report of the Corporation of the City of Capetown, South Africa. We might term it an annual delight for as in previous years the report is a record of activities that would hardly be considered municipal in Canada, though why, we know not for this Journal has always maintained that the functions of a municipal council do not begin and end in the administration of the corporation departments. There is the broader conception of the social life of the community and its responsibility to its neighbours and the nation that at times seem to be lost sight of in Canada, and so we would commend the reading of the Capetown report. The Mayor's address might have been a national appeal so broad is its outlook yet it does not lose sight of the municipal business at home. Department duties are relegated to their proper place —efficiently but secondary. In the presentation of a Sword of Honour to General Botha—the Dutch Premier of South Africa—on his conquest of German West Africa the City Council bound together in closer bonds the two ruling peoples of South Africa—Dutch and British—and in the memorials to the late Captain Scott, of Antarctic fame, and Nurse Edith Cavell the heroine of Belgium and in the observance of "France's National Day" as a tribute to a great Ally, and the public receptions to the gallant Australian and New Zealand contingents who were returning home wounded, the municipal council of Capetown not only took their proper place as the fathers of the people but lived up to that larger national responsibility which we again suggest could be well followed in our Canadian municipalities.

Government Telephones In Manitoba

On another page we publish an article by Mr. W. D. Lighthall, K.C., the Secretary of the Union of Canadian Municipalities, dealing with a book by Dr. Mavor, that purports to be based on an investigation of the government telephones in Manitoba. Mr. Lighthall in questioning Dr. Mavor's sources and criticizing his findings is specially qualified to speak on the subject for he it was who, as secretary of the U. C. M. was largely instrumental in bringing about the public owned telephones in Manitoba. While we have no doubt that there are shortcomings in the Manitoba Government system of telephones, as there are shortcomings of some kind in every public-owned utility — yet they are but usually the results of inexperience which with time will be eliminated, and the defects in Manitoba are more than made up by the direct advantages to the users. As Mr. Lighthall points out the Bell Telephone Co., the previous owners, would never have put up rural telephones, one of the chief essentials of a rural social life, because the profits would be too little. As a public utility the Bell Telephone system gives excellent service, but the directors have always had to con-

sider the shareholders first and consequently never have encouraged, indeed could not encourage rural lines, and yet the rural phone has been one of the big factors in keeping the people on the land. The great objection that we have against the book is the distorting of facts and stating of half-truths so as to poison the minds of American readers against public ownership of telephones. Those readers not knowing Canada would come to the conclusion that her public life was rotten to the core — that political intrigue was the first essential of a public man's life, and that the Canadian people were so imbued with greed and with an absolute lack of public spirit and pride as to allow such political dishonesty to go on for ever. Throughout his book Dr. Mavor does not bring in one logical or sound argument against public owned telephones, instead he would seem to have confined his energies to a species of destructive tirades not at all in keeping with the spirit of honest investigation and criticism. Such a work can only do harm, and cannot help but reflect on the honesty of purpose of the author.

Our Preparedness Number

Immediately following this issue of the Journal we are publishing under the auspices of the Union of Canadian Municipalities our **Preparedness** number with the hope that its contents—the result of much preparation and thought—will be read, discussed and acted upon by the municipal councils of Canada. Practically throughout the Empire, and the world for that matter, preparations are being made right now by municipal authorities to meet the after war conditions. In the Mother Country municipal councils, realizing the keen competition that will follow the war, and the ambitions of men who have tasted the sweets from the profits gotten of war's necessity, have for some time been preparing publicity campaigns to encourage industries to locate in their particular district. They have taken a leaf from the United States and Canada.

In studying the situation ourselves and in consultation with many men who ought to know, we have come to that conclusion that Canada's opportunity lies in the development of her own resources, rather than in encouraging industries foreign to her soil and climate. To illustrate, Great Britain in the midst of her vast preparations to win the war has also been preparing for "after the war". What are war plants today will be peace plants tomorrow, for England has a big bill to pay and she must manufacture and sell goods to meet that bill. She has the ships and will have the goods to flood the markets of the world, including this country, at prices that Canada could not begin to compete with—goods that may be indigenous to the Old Country but certainly are not to this Dominion. Canada's great chance and oppor-

tunity is in industries indigenous to her soil—in the utilization to the full of those resources right at her door. With that idea in view we have confined ourselves in Canada's preparedness propaganda to the natural resources and their development. That is all.

But what wonderful material resources this Dominion has. In this there is no other country in the world that can stand comparison with it; in addition to which it has transportation facilities, both natural and artificial, which are the envy of most other countries; meaning that Canada by the intelligent development of her lands, her minerals, her fisheries and her forests, (and their proper marketing), has such a future before her that the most optimistic of us can hardly measure.

U. C. M. CONVENTION.

In the latter part of August the Union of Canadian Municipalities will hold its annual convention in London, (Ont.) As each year increases the number of municipal problems in Canada and as the programme will feature these problems a large delegation is expected. Another practical question that will be discussed is the preparedness of the municipalities to meet after war conditions. This question affects every community, both in its local bearing and its part in any national scheme, so that the convention will be one of the most important in the history of the Union.

EXTENT OF FEMALE EMPLOYMENT IN GREAT BRITAIN.

From the Canadian Labour Gazette is taken the following table which is based on returns made by employers to the Employment Department of the English Board of Trade:

	Estimated Number of Females Employed.
Industrial occupations	2,133,000
Government establishments	2,000
Commercial occupations	496,000
Professional occupations	67,500
Banking and finance	9,500
Hotels, public houses, cinemas, theatres, etc.	176,000
Agriculture, permanent labor (Great Britain)	80,000
Transport (not municipal)	17,000
Civil service	66,000
Local government (including teachers and transport workers under municipal au- thorities)	184,000
Total	3,231,000

THE EARNING POWER OF A MUNICIPAL TRAMWAY.

The splendid success of the municipally owned electric car system of Glasgow (Scotland), is well illustrated in a recent report which shows that all the capital expenditure—principally incurred in changing from horse to electric traction, and amounting to over \$19,000,000, has been wiped out—practically in sixteen years. Our English contemporary, the Municipal Journal, gives the story in an editorial which makes instructive reading to those who would know the value of a municipal franchise to private companies. The article reads as follows:—

As a result of the re-arrangement of Glasgow's tramway finances the department is now not only free from debt, but has a balance of £119,000 at the credit of the depreciation and permanent way renewals fund. Glasgow's trams, which were previously run by a private company, were taken over by the Corporation in 1894, and started as a horse traction system. That system was superseded in 1901 by the adoption of electric traction, and all the capital expenditure which that change involved, as well as the cost of the developments which have taken place in the intervening period, has been wiped out within sixteen years—a wonderful record. In a memorandum which was submitted to the Tramways Committee a few days ago, the general manager, Mr. James Dalrymple, stated that as the total amount of the accumulations of revenue now exceeded the amount of capital indebtedness, it was proposed to transfer from the depreciation and permanent way renewals fund to the sinking fund such a sum as would make the sinking fund equal to the capital expenditure. The total amount of capital expenditure was £3,835,156 16s. 10d. The net amount owing to the Common Good was £2,328,889 15s. 4d. The proposal was that this sum should be taken out of the depreciation and permanent way renewals investment account. The total sinking fund already applied in reduction of debt was £1,506,267 1s. 6d., which, added to the £2,328,889 15s. 4d., would make the total sinking fund £3,835,156 16s. 10d., being the exact amount of the capital expenditure. The effect of this arrangement would be that the sinking fund would equal the capital expenditure, or, in other words, the whole of the debt would be wiped out, and there would remain a balance of £119,055 14s. at the credit of depreciation and permanent way renewals fund.

GOOD ROADS CONGRESS.

The Good Roads Congress which was held last month in Ottawa was a splendid success and must have convinced the executive that their efforts had been appreciated. The papers and addresses were even an improvement on those of last year and anyone visiting the sessions could not help but feel that a keener interest was being taken in good roads by the layman. This was seen in the discussions which were lively and instructive. In our June issue we hope to publish the whole of the proceedings.

LONG AND SHORT BALLOTS.

New Jersey Municipalities are publishing an interesting series of articles under the general title of Practical Democracy, from the pen of Mr. H. S. Gilbertson, Sec. of the United States National Short Ballot Organization. The third article, "Ballots and Human Nature," is particularly instructive, as showing that the absurd lengths to which the system of election of public officials in the United States has gone is defeating the real object of democracy. In part the article reads as follows:—

We were to explain in this article why the long ballot never fails to produce a boss or political machine. In Winthrop, Mass., some four years ago, the people were voting in their primary election. The Progressive Democratic party put up a partial ticket, but omitted to name any one for representative in the General Court (legislature). One unknown voter, to complete his ballot wrote in the name of "James O'Connell." Inasmuch as no other nominations were made this vote constituted the highest number of votes on the ticket for the particular office. The secretary of state accordingly had this name printed on the official ballot for the district. "James O'Connell" received 735 votes at the regular election, and thirty-seven votes more in Winthrop than the regular Democratic nominee.

When the returns were in it was discovered in the town clerk's office that no such person as "James O'Connell" existed, and yet 735 men had voted for him, and he had received 37 more votes than one real man!

An elected state official of New York committed suicide a few years ago. When the papers printed his political history, which was anything but a brilliant one, the people of the State were astonished to know who their state treasurer had been—and yet over a million men had gone over his name on the ballot when he was elected.

The people elected this state official?

Well, now did they? Or did they just blindly and automatically place their cross marks opposite the names of a lot of men of whom they knew absolutely nothing. And how did those names get on the ballot? If the voters did not pick them out they could have gotten there in only one other way. Somebody must have picked them out "by hand," appointed them.

That is principally what political machines are for; to tell the voters whom to elect, and the "boss" is simply the head machinist.

Contrast these conditions with those in England. There the city voter elects a member of Parliament once in five years, a member of the borough council and two auditors once a year. Through these he controls his government both national and local. Nobody in England ever dreams of asking to elect any more. Nobody has the slightest desire to try to pick sheriffs or dog-catchers or bailiffs. And nobody in England ever saw a political machine or a boss such as we know in this country.

The Short Ballot idea is to approximate conditions in England, that is, to elect a few conspicuous officials at any one time, but give them power and responsibility and keep them where the voters can see them all the time. This would give us government based upon humanity just as it is, and not upon humanity as some enthusiasts for the "people's rule" think it ought to be.

BIG PROFITS FROM CITY CARS.

Out of a total revenue of close on \$3,750,000 last year the Liverpool city tramways made a profit of \$1,180,555, from which \$625,000 is being applied in reduction of the general rates of the city.

CANADIAN MUNICIPAL PREPAREDNESS NUMBER WILL BE PUBLISHED NEXT WEEK.

High Cost of Living

ROSE HENDERSON.

Mr. J. A. Beaudry, Treasurer of the Dominion Retail Merchants' Association, takes issue with an article of mine appearing in the March number of the Canadian Municipal Journal, and challenges me to show some one responsible for manipulating the markets and raising food prices. I accept the challenge, but I shall relieve Mr. Beaudry's mind at once by assuring him that I am not going to point out any one individual as responsible for the high prices of food stuffs; this the Government itself, aided by the law, and all its power, has found difficult. How futile, therefore, would be my attempt, although the other day I met a man who told me that he had cleared \$500 on potatoes during that month, and smilingly said that if he didn't some one else would. Business is business, and as long as this game lasts, "We'll be there."

This is the curse and crux of the whole matter, the important duty of supplying the necessities of life to the people is looked upon as a "game," an opportunity for some individuals to make money out of the suffering sweat and tears of men, women and innocent, helpless children. Of what benefit would it be if this individual was brought before the courts and asked to give an account of his commercial transactions? The question is a social and international one, and there is no law in this country at present, that would bring an individual, found guilty, to justice, such as now exists in Great Britain. The individual trader is not apart from the Stock Exchange, the bank which loans him the money, short on time, and long on interest; the railway which hauls the product; the wholesaler which buys; the retailer which sells; and the great, unthinking ass—the dear public which consumes. We are one and all bound up in the social tangle, and cannot, if we would extricate ourselves individually. Take as an illustration the railways. We cannot point to any one person as the owner of this or that railway. Yet we know that a group of people control a system of railways, steamships, hotels, and other industrial enterprises, incidentally for the accommodation of the public—primarily because they are a source of profitable investment. We know, too, that if the dividends flowing into the pockets of the shareholders were diverted to the running expenses of these public necessities, the people would travel cheaper, food would be hauled cheaper, wages would be higher, and the standard of living of thousands thereby raised. The individual shareholders of these enterprises are not to be blamed. Certainly not.

Business is business, and so long as business is run for the profit of the individual, and not for the sake of life and happiness it is his or her right to take all the trade will allow.

Mr. Beaudry says, "I know of no combines that are raising the price of food stuffs and I wish Mrs. Henderson would name those she knows." I will with pleasure. Quote from the press—

Ottawa press despatches intimate that there is a possibility of Government interference with the methods whereby the B. C. Sugar Refinery operates, and controls with an iron hand the price of the commodity in which it deals.

The Ottawa advices intimate that Mr. H. O'Connor, K.C., the Dominion Cost of Living Commissioner, intends to take action against this concern on the charge of criminal conspiracy. The grounds of action are said to be the admitted practice of the sugar refinery in giving certain discounts to jobbers and wholesalers who maintain the list prices for sugar fixed by the concern. The jobbers also agreeing not to handle sugar from any other refinery, but also to sell only on terms of credit dictated by their refinery. "This looks like a combine to fix prices and to maintain them at all cost. Mr. B. T. Rogers, the Sugar King, in an interview, declared "that his action was perfectly legal, and sanctioned by the courts." He evidently neglected to interview the Government, as Ottawa despatches note that at the instance of the authorities, an eastern hat wholesalers had to send out some six hundred letters to his customers notifying them that they were not compelled to regard a trade agreement covering the price at which the hats were to be offered. In referring to sugar monopoly in B. C., the Free Economist on Feb. 23 reports:

"The request of the Ottawa authorities for permission to prosecute the B. C. Sugar Refinery for "criminally con-

spiring with wholesalers and jobbers for the maintenance of the price of sugar," has been granted by the Attorney General of British Columbia. The Nelson Board of Trade forwarded a petition to Ottawa asking for a commission to be appointed to take prompt action in the interests of the public. The investigations and findings of the merchants of Nelson make an interesting contribution to the study of this subject. They discovered that by the fixing of prices, granulated sugar selling in Vancouver at \$7.44 per 100 lbs., was being sold at Calgary at \$7.55, and this after paying a 75 cent freight rate, and at Regina, with the same freight rate for \$7.74. B. C. sugar was selling in Winnipeg at the jobbers' price of \$7.05, which, after deducting the freight rate of 69 cents, would mean \$6.36 net, or \$1.68 less than the jobbers' price in Vancouver..

The high prices of food cannot be attributed entirely to shortage of labor or cars, nor yet the war. Before the war, prices were continually ascending, in spite of the fact that there were thousands of jobbers' men looking for work, and we were not told of any shortage of cars. It is also useless to ascribe the trouble to the extravagances of the masses; we all know that the profits of manufacturers of boots, cloth, fabrics, as well as the necessities of life are enormous, while wages have not kept pace in proportion. No doubt there is much waste in the homes of thousands of the middle class and rich, but there is precious little in the homes of the masses, for the very good reason they have not got the money to buy the food to waste. If there was waste in the homes of the working people to amount to anything to-day, they couldn't live. Already they are obliged to forego the absolute essentials. Potatoes, onions, butter, meat, eggs, and many of the staples are beyond the pockets of many middle class people, much less the poor.

Mr. Beaudry quotes Mr. D. H. Houston, U. S. Secretary of Agriculture, as follows:

"The experts of the department report to me that studies made by them point to an annual waste of about \$700,000,000. These experts assert that food waste in households results in large measure from bad cooking, and an over-abundant supply." And Mr. Beaudry makes the further comment that what is true of the United States homes is also true of Canadian homes."

No one realizes this more than women themselves, 50 per cent. or more children on this continent die before they reach their fifth year through ignorant mothers. Why do those good men who control our schools not introduce into the curriculum the teaching of subjects which will fit girls for home making and motherhood. If the women need to be taught efficient housekeeping, men need to be taught efficient nation keeping. Millions of pounds of food products are yearly destroyed through careless handling, packing, transportation and a great deal allowed to rot in cold storage and in the fields. This waste is far greater than what takes place in households. If the State took more control of the necessities of life there would be less food allowed to rot in order to raise prices, and increase profits. According to the U. S. Department of Labor, staple food products have increased 86 per cent. from 1896 to 1913, the year before the war, while wages increased only 21 per cent. In view of these figures it is quite obvious that the majority of wage earners can neither afford to "waste" or secure an "over-abundant supply." Is it any wonder that the terrible trinity—immorality, crime and insanity—are increasing?

Mr. Beaudry says "investigation into the cherry story would probably prove that the cherries were allowed to rot on the trees because it was impossible to get labor at a "price" that would make it "profitable" to pick and handle the fruit." Exactly—"profits" are the crux of the matter; therefore the conclusion to be drawn is that when it isn't profitable to employ men they must go idle, and when it is not profitable to gather and sell food people must go hungry, or pay exorbitant prices. Surely Mr. Beaudry does not think this is a moral, safe or sane condition of society?

With every issue of the press new facts regarding food prices, the conditions and growing discontent of the masses are driving people to think seriously. In the local Star of April 10th we are informed that in the U. S. (markets which also affect ours)—"Sugar, flour and feeds of all kinds take a mad bound to dizzy heights—problem of caring

Civic Affairs in British Columbia

JACK LOUTET.

THE ASSESSMENT ROLL.

For many years the law in regard to assessed owners and voters has been such that great difficulty has been experienced by British Columbia Municipalities in getting the proper parties on the assessment roll and voters list. This has also complicated tax sales. The laws governing this matter have been changed from time to time, but some of the amendments have in practice been found to be unavoidable. It has been argued that an agreement for sale holders should not be assessed and get on the voters list as he may, by voting on money by-laws support an expenditure which will eventually fall on the registered owner-in-fee through default on the agreement. This, however, is just as true when applied to a registered owner who if granted the vote might sanction an expenditure which would fall on an agreement for sale holder or a mortgage. It is largely a question as to which has the greater interest and if an owner wishes to sell on agreement he should take the risks which accompany that method or provide in the agreement suitable protection for himself. It should not be necessary to fly to the legislature to alter laws to protect individuals who have failed to protect themselves. Where amendment appears to be necessary, however, is in the method of securing alterations to the voters' list and assessment roll. At present a purchaser of land in order to get on the voters' list must sign a statutory declaration declaring that he is the registered owner and has paid the current year's taxes. With municipalities issuing tax notices in June and July, it is obviously impossible to take the declaration in February before the tax rate is fixed. Later on, say in August, the vendor may have already paid the taxes so that the purchaser cannot get on the list for the ensuing election.

Land Registry Act.

It is now proposed that the Land Registry Act be amended to provide a new "application to register form which will have attached a slip to be filled in by the applicant giving all particulars of the transfer, the nationality of the applicant, and a proper address for service of notices or tax statements. As soon as registration is complete the clerk in the Land Registry Office would place the slip on a file reserved for the municipality in which the land is situated and these slips will be collected weekly by the assessor and be his official authorization to change the assessment roll. No time will be wasted in searches and no declaration by the new owner will be required.

HIGH COST OF LIVING (Continued).

for inner man reaching acute stage." This rise, which happened over night, was not due to shortage of labor or cars but to speculators, who gambled on the fact of the United States coming into the war, and making a greater chance for them to profit out of the people's agony.

In the same issue we read:

Chicago, April 10th.—"Sensational breaks in value of provisions pulled down with a crash to-day the corn market, and then almost instantly wheat and other grains. Powerful advocacy of radical steps by the Government to control food prices was the chief factor in bringing about the collapse of the whole series of Board of Trade markets. A general rush to sell brought about a condition bordering on a panic in the provision pit, where pork made a sheer descent of \$1.55. Wheat traders were overwhelmed with stop orders to sell."

This looks like combines and speculations; not shortage of labor, cars, or the extravagance of the housewives.

In another issue we are informed that James B. Haggin, of New York, has left a fortune of over \$20,000,000. That J. D.'s Standard Oil Co., of Indiana filed notice with the Secretary of State of an increase of capital from \$3,000,000 to \$100,000,000; why not a decrease in oil? These are questions which must be settled, and are worthy of our deepest thought. They cannot be explained away on the ground of labor shortage, the war, or the divine right of capital. The end and aim of life is not to work for the sole object of obtaining a miserable existence, and producing profits. I believe, with millions of others, that life has a far higher and nobler purpose. That money and labor are but means to an end. That the curtailment of profits and state control of the necessities of life are essential and will benefit both labor and capital. But economy to the point of starvation is not the remedy.

The address may be changed by notice in writing to the municipality and the last known address shall be the legal address for all municipal purposes. It was further proposed that no registration application be accepted by the Land Registry Office unless receipt for the previous year's taxes or a certificate from the collector stating that payment had made, was filed with the application. This part, however, has not yet been fully considered.

Vancouver's Water Supply.

Vancouver at present is taking much interest in the question of retaining the purity of the water supply. This comes entirely from North Vancouver, across Banard Inlet. The mayor is not favorable to a commission taking over the water supply of Great Vancouver, as Vancouver having been first in the field is now deriving an excellent revenue from their water rights. At the same time the mayor desires to prevent any development of land, timber or minerals in North Vancouver, on the watershed areas of the Capilano or Seymour Creeks, and argues that even if holders of land, timber or mineral claims should be compensated, the City of Vancouver should pay no part of such compensation. He is averse from any development, however strictly regulated and unwilling to be guided by the experience of other municipalities in this regard.

The problem is a serious one, and if experts deem any or all development on the watersheds dangerous to public health, such development should be prevented by providing fair compensation to be paid proportionately by those benefiting. So far opinions have been from paid officials of interested municipalities, and these naturally are somewhat extreme.

Burnaby is Lively.

On Burnaby of late has fallen the mantle of South Vancouver, and recent meetings have been as stormy.

This council has had before it a request from a Moving Picture Producing Company for a site for a film city with free water and no taxation. It is hardly likely that this will be granted, as the securing of the site means a large cash expenditure with the security of a nature not suitable from a municipal point of view. West Vancouver, which lies just outside the First Narrows, opposite Stanley Park, is now debating the desirability or necessity of ceasing to operate a municipal ferry system, and arranging for communication with Vancouver by means of the Pacific Great Eastern gasoline trains, and the North Vancouver City Ferries. Heavy losses have occurred in operating, and bonded indebtedness has been increased through the municipal system. Some of the Council believe that the time has come to stop further loss. Many ratepayers, not realizing the true position, wish to continue operation of the ferries, but the alternative scheme should in no way retard the progress of West Vancouver, while saving a large sum annually.

Reclaiming Sumas Lake.

At a public meeting at Sumas recently, demands were made that the Sumas Dyking Commissioners resign, owing to alleged inactivity for years past, and statements of cost which were declared to be excessive.

The project of reclaiming Sumas Lake was first mooted in 1876, and has not been actively pushed for many years. Much survey work has been done, and details worked out by both Government and private companies, but all schemes failed to materialize. The work is estimated to cost about one million dollars, and besides reclaiming about 33,000 acres of land, would prevent an annual loss through flooding—last year estimated at nearly \$250,000. Little has been done by the Government Commission, largely owing to lack of funds.

A big fight is on at Victoria in regard to the Vancouver Charter Amendments. Vancouver desires to have the power to sell light and power without having to buy out the B. C. Electric Railway Company. This is at present expressly forbidden in the City Charter as it now stands, and as might be expected, the Electric Company is strongly opposing the proposals of the city officials.

Undoubtedly the desired powers are supported by those citizens who are always ready to believe the worst of a private corporation, but should the city get the power and exercise it the result at best would be cut-throat competition, neither good for the city nor the company.

Municipal Affairs in Manitoba

By H. E. MORTON.

Within a few hundred dollars, Winnipeg's hydro-electric system has earned as large a surplus in the ten expired months of the current fiscal year as in the whole of the previous financial year. This is rendered all the more creditable when one considers that the daylight saving plan was in force last summer and without doubt had some effect on the amount of current consumed, also that the modification in the domestic rate for lighting, heating and cooking, might have been reasonably expected to lessen the visible surplus this year.

The total surplus for the last one year and ten months now amounts to over \$165,000, after providing for sinking fund, depreciation and all contingencies, so that those acquainted with the inner economy of the hydro-electric, recognize that citizens have not merely a magnificent example in it of the advantage of public ownership of public utilities, but have an organization which to all appearances approximates the model organization.

Talk of management by an outside commission has been prevalent for some time, but unless there should be established an unexpectedly strong case for disturbance, the city council, it is thought, will be well advised to discourage any inclination to interfere with the present arrangements which are working out to such satisfaction. When the responsible experts in charge of such departments can make the progress those handling the city's hydro-electric have made and against adverse conditions, they are entitled to receive the fullest credit for what they have accomplished and be encouraged to continue in the good path by leaving their control unhampered by a commission with qualifications unproven.

Election Enquiry Causes Arrests.

Allegations of corrupt and irregular practices during the municipal elections in Winnipeg last December which have been the subject of extended enquiry and a lengthy report by Judge Myers of the local county court, recently reached a sensational stage in the arrest of seven of those named during the probe.

Robert J. Waddell, candidate for the mayoralty; Walter Wickson, candidate for the board of control; Robert Snook, candidate for the board of control and John I. Stien, returning officer poll 33, were arrested under warrants charging them with "breach of the election act while Jack Stien, deputy returning officer; Arthur Levin and Joseph Skaletar, both poll clerks, were charged with conspiracy."

Events leading up to the arrests of the above named citizens commenced with rumors of irregularities in connection with the voting and conduct at the polls. A. Heaps, a defeated candidate in ward 5, obtained authority to examine the poll-books and ballots cast in that election. As a result he wrote a letter to the city council charging grave irregularities in the handling of certain polls.

Meanwhile the mayoralty election in which D. J. Dyson the well known manufacturer had at first been declared elected, but had, after taking his seat as mayor, been unseated on recount, Alderman Davidson being declared the successful candidate, had become the subject of an appeal in the courts. When in due course the case came up for trial before Judge Myers, evidence was adduced which resulted in the decision that, though repeating had undoubtedly occurred and there was no ground for reversing the result reached at the recount, other serious irregularities had occurred, and the evidence in this case was taken into account by the judge in the enquiry held later on at the request of the city council.

The proceedings are the subject of great interest locally, the defendants all of whom are now on bail being well known local men.

Street Cars vs. Jitneys.

The Winnipeg Electric Street Railway has fired the opening gun of its battle to maintain the exclusive right to carry passengers through the streets of Winnipeg, according to its charter and its contracts with the city. Notice has been served upon the city of a claim for damages amounting to \$1,000,000 for losses sustained by the company due to competition from the jitneys, which is alleged to have been tolerated and even fostered by the city.

For some time past there have been reports that the company intended to protest the competition which has been permitted to grow up in the last three years. These rumors had it that the company would bring a direct action against the city, or by refusing to build extensions when ordered to do so or by withholding payment of the city's percentage on earnings, would force the city to

take the initiative in a legal fight to determine the respective rights of city and company.

During the last two years the railway company has, it states, paid to the city in taxes considerably over \$500,000. In addition, a sum of approximately \$20,000 per annum has been paid in street cleaning, also \$20 a year for each car running, this amount approximating \$13,000 per annum. It maintains that, on the basis of this exclusive franchise, it has paid its percentage of earnings to the city, has built and maintained pavements, and has made unremunerative extensions to its lines from time to time. This claim is now in the hands of corporation counsel, Theo. Hunt, K. C.

\$150,000 in Salary Increases.

It will cost the taxpayers of Winnipeg \$150,000 per annum more than hitherto to meet increases in civic salaries adopted by the city council and which will be made retroactive as and from March 1 last. In addition to this, forty men may be added to the strength of the fire brigade, which will make a further increase of about \$55,500 per annum. The effect of this will not be so marked during the current fiscal year as the board of control is in the happy position of having emerged from the last fiscal year ending May 1, with a surplus of \$150,000.

Realty assessment rolls for the year 1917 have now been completed and show an actual reduction in Winnipeg's gross assessment of \$25,065,580. The total assessment of the city has now been placed at \$253,667,790 compared with \$278,732,370 in 1916. As might be expected little interference has been made in the value placed on buildings, this showing an increase of just over \$28,000. Land, however has been placed on a more equitable basis, with a reduction of well over \$25,000,000. Exemptions, still large, amount this year to \$37,069,000, exclusive of properties owned by the city which represents an additional \$2,165,000. This amount, a reduction of over \$7,000,000 on 1916 exemptions, will be still further reduced and to a considerable degree if the anticipated recommendations of the board of valuation and revision are put into effect. These, there is good reason for believing, will contain strong recommendations for the taxing of all church property.

Civic Improvement Convention Starts May 28.

On May 28, 29 and 30, the Civic Improvement League of Canada will hold its second annual conference. Winnipeg has been chosen as the meeting place, and the sessions will be held in the Industrial bureau, with Sir John Willison, of Toronto, presiding. Local cabinet ministers will attend and the lieutenant-governor, Sir James Aikins, has signified his acceptance of a similar invitation. Local organizations which will co-operate in making the convention a success will include the local branch of the Civic Improvement League, the Citizens' League, the Board of Trade, the Retail Merchants' Association, the Rotary Club, the Manitoba Association of Architects and the Winnipeg Printers' Board of Trade. The National Council of Women will be holding their convention in the city at the same time, and efforts are being made to arrange at least one joint session. During the period of the convention an excursion will be run to Shoal Lake over the 97 miles of the \$14,000,000 Greater Winnipeg Water District Aqueduct, and other arrangements are being made to give the visitors a good time.

Doings at Brandon.

Brandon has decided to amalgamate its fire and police departments under an arrangement which, it is claimed, will not impair the efficiency of either department. Absence of crime, attributed to the Liquor Act, makes this possible. The chief of the fire department is to be the head, with a subordinate qualified official in charge of the police work. This arrangement is made easily possible as since the inauguration of the temperance act in Manitoba, Brandon police have had little to do, only one man, a purse snatcher, having been sent to jail since the beginning of the year.

Following applications for increased salaries from the employees of all civic departments, the standing committee of the city council met in joint session to deal with the question, eventually deciding not to grant increases in any case. On the other hand a somewhat rather drastic recommendation, which is said to have the support of the majority of the council, may mean the dismissal of several departmental heads.

Municipal Affairs in Alberta

REGINALD G. J. SMITH.

Edmonton's long planned tax sale is under way. The sale of property in arrears of taxes opened on Thursday, April 12th, with two auctioneers taking turn and turn about on the platform. Whether the sale will be over or not by the time this report appears in the Journal is only a matter of conjecture. If money flows easily, then the sale will have ended ere this appears in print; if not, then the familiar phrase "going, going, gone!" will resound through the auction room, till the last lot is offered for sale.

In the June report, it will be my purpose to go into detail regarding this tax sale. This sale can be marked down as a sort of red letter day for Edmonton, inasmuch as twenty-two years have passed since the last tax sale was held. No one doubts in Edmonton that the sale will be a failure. The people in the west have confidence in the capital city of the province, for it has demonstrated in no uncertain tones, that when the need for economy has to be practised, then it can be done and done with a will. The cost of municipal administration has so decreased, that it is cause for comment. How on earth can the city run with such a small expenditure, compared with the breath-taking totals which were expended prior to 1914 and including this momentous year!

Property first going under the hammer (this article is being written a few days before the sale opens) will be outside lands. Up to the time of sale any owner can pay up the 1913 taxes and the cost of the sale and stop his property from going on the auction mart. Land owners have taken advantage of this salvation, and the city treasury is a few thousand dollars richer to-day through the sale being advertised. Of course, there are plenty who will wait till the last day before they redeem their land, but those who have faith in Edmonton have paid up their arrears and the land is now clear until another sale is held when the 1914 and 1915 arrears will have to be accounted for. It might be stated for the information of municipal authorities in the dominion, that if this sale is at all successful, then Edmonton intends, and indeed it has the power now, to hold a tax sale every year thus making those who own land pay up their taxes or else let their property go.

No lots will be sold for less than the amount of taxes in arrears, including the costs up to the end of 1913 and all lots go to the highest bidder, naturally. Purchasers will be required to pay on the day of sale all taxes in default and costs up to December, 1915, providing the property is in arrears prior to and including 1913 and also 1914 and 1915. As soon as the lot is knocked down, however, the purchaser will be required to sign a form in which he declares himself the buyer and accepts all the obligations attached. He may then make his payment of the amount of taxes and costs at some convenient time during the day.

No interest has to be paid by the purchaser on the amount left over on the purchase price above the tax arrears and costs. For instance the taxes and costs on a lot are \$200. If the lots sells for \$500, the purchaser pays down the \$200 covering the arrears and the remaining \$300 stands over for three years. If the original owner does not redeem the property during that period of redemption, the purchaser pays the City of Edmonton the remaining \$300, but he does not have to pay interest on the money as an outstanding account. Also the original owner if the lot is not redeemed, can come back to the city and claim all the money received for the property over and above the arrears of taxes and costs. If the property is redeemed the original owner has to pay 10 per cent. per annum interest, or amounting in the aggregate 30 per cent for the three years on the amount of taxes and costs.

So far as the payment of taxes on the property is concerned, during the three years which cover the redemption period, the original owner has the right to pay the taxes if he or she does so prior to the ending of the discount date set for the payment of current taxes. If the taxes are not paid by this date the purchaser of the property can do so and the money thus invested is liable to 10 per cent interest on redemption on the same basis as the amount of tax arrears and costs.

If payment is made at the sale with an unmarked check the buyer will receive a receipt through the bank along with the cancelled check. Owners, their agents or as-

signs, may redeem lots any time within three years from April 12th, 1917, by paying to the city treasurer the amount paid by the purchaser plus ten per cent interest for each year or fraction thereof within which redemption is made. Tax sale certificates will be mailed to all purchasers and anyone not receiving his or her certificate within one month should communicate with the city treasurer. The lots as they are put up will be announced on a black-board. Maps will be shown of the sewers, water lines and surface improvements, fire limits, etc., so far as the different properties are affected. The sale will go on day after day, from 10 a.m. till 12.00 p.m., then from 2 p.m. o 4.30 o'clock. The auctioneers received \$15 per day between them for the time they are engaged on the work.

Now something ought to be said about the effect of the tax sale. It has been said in different newspapers—outside of the city of Edmonton—that the sale will have a bad effect on the city. Time will tell whether it will or not. The writer firmly believes that it will prove a good thing for Edmonton. It will at least show the bond holders that the municipality intends to keep its credit good, and speculators will also be forcibly informed of this fact, that Edmonton is no place to speculate in, especially if they think they can hold the land for big prices without paying their taxes. The moral effect of the tax sale has had practical results already. The city has obtained well over \$50,000 arrears of taxes. One check received, according to City Treasurer, Barnhouse, was for \$27,000, and another for \$7,500. The provisions of the Volunteers and Reservists Act, being a modified form of moratorium as stated before, has had its effect. Something over 8,000 lots have been withdrawn, the owners claiming and obtaining protection under the provisions of this act. In these cases the city loses the costs, \$1.45 per lot, although in many cases the owners have paid this small sum, rather than the city be the loser. As an instance of this one man called at the treasurer's office a week ago and asked that 800 lots be withdrawn from the sale, the act, he claimed, protected him.

A considerable amount of interest has been evinced in the sale. The city has advertised in the newspapers in Vancouver, Winnipeg, Toronto and Montreal, and hundreds of enquiries have come from the first two named cities.

Space will not permit going into details on the fate of the various amendments to the different city charters sought by the Alberta municipalities before the provincial legislature this session. Needless to say there was more cut off than left on. To see the amending bills after the legislators finished their "dirty work" was indeed laughable. A proposed amendment would be read out. Immediately someone jumped to his feet "move it be struck out," another member would "second the motion," the chairman would look around the chamber, "all in favor" and the "ayes" resounded. Cruel fate! The bone was picked clean. Evidently the members of the assembly thought they would have a bit of fun with the municipal authorities, and they did. However the city officials took the blows smilingly, for they had another scheme up their sleeves, and this is what they intend to do.

The Alberta union of Municipalities will bring out a candidate for the legislature, one who will watch the interests of the cities, towns and villages.

This decision was literally forced on the Union for this reason. An attempt was made to rush, railroad and chloroform through the House a certain compulsory amendment to city charters, irrespective of the wishes of the cities. The legislature proposed to prohibit the operation of one man cars. The labor people, or rather a few of them, had been busy lobbying, and the amendment was drafted and all ready to be rushed through, but someone was "wised" to the move, and overnight representatives of all the cities were on their way to the capital, telegrams were despatched voicing a protest, and in the end the cities won out. It was a narrow shave, but we all remember the saying "a split lip tells many tales," or something like that.

"Government Telephones" in Manitoba

W. D. LIGHTHALL, K.C.,

Hon. Secretary Union of Canadian Municipalities.

On April 5th, 1917, I received by post a book entitled "Government Telephones," by James Mavor, Ph.D., Professor of Political Economy in Toronto University, published by Moffat, Yard and Company, of New York, 1916, and by the McLean Publishing Company of Toronto, 1917. It was bound in cloth, covered by the usual temporary paper cover, on which were the following words: "Government Telephones, The Experience of Manitoba, Canada. 'Government Telephones' is a compelling and fearless narrative of the true record of an American Government in the management of a great commercial business. It tells what happened to the rates, the finances, the consumer and the taxpayer, and carries a lesson to every patriotic American." On reading it I found that it purported to be a fair and impartial study of the history and outcome of the public telephone system of the Province of Manitoba, by Dr. Mavor, as impartial expert on Economics. Its conclusions were very derogatory to the system, both in the motives of its inception and in its results. Manitoba was held up as an example of the absolute futility of public ownership in America, and as a "horrible example."

As I had had a good deal to do with the events and persons concerned in the inception of the system, I perused the statements of the book with much interest. It was not long before I came across mis-statement after mis-statement, and it was evident to me that the eminent Professor had been sadly imposed upon by somebody, and had better have kept upon ground with which he was more familiar. In his introduction he states that his study was founded upon "published" documents, "contemporary" newspapers and "conversation with those who had had relation to the system," and that "the enquiry was greatly facilitated by his acquisition of a considerable mass of privately collected data" on the subject. My suspicions became aroused, and I examined closely the book and the envelope which had brought it to me. On the first fly-leaf was pasted a printed slip, bearing the words, "With the compliments of the Author." The envelope, however bore the imprint of the McLean Publishing Company, and the word "personal" in writing, but not in Professor Mavor's handwriting. I removed the two postage stamps from the envelope, and noticed that they each bore two large letters made by a perforating machine. These letters were "B.T." The conclusion was irresistible. The mystery was solved. The work had been mailed from the Toronto offices of the Bell Telephone Company. The source of the work was clear. Its objects were also clear; they were the objects of the Company. And not so much of the Bell Company of Canada, but of that colossus, the American Bell Company, of which it is practically a branch. We were on familiar ground. It is quite evident whose were the so-called "facts" and "published documents," and by whom they had been inserted in "contemporary newspapers," during the early battles of the Company with the public of Canada. "Those who had had relations with the system" were none other than Bell Company officials; the conclusion is probably not far astray that the "considerable mass of pri-

vately collected authoritative data" was ammunition collected by someone connected with the company for the purposes of its fights at that time.

The provincially-owned system of telephones in Manitoba was established in 1907, and about the end of that year the Bell Company sold out to the Government, which made great extensions, especially in the matter of rural and long distance lines. Whether that Government has since managed it very well or somewhat badly is not a question which I have to argue; although the money result is stated by Dr. Mavor to have been in 1915 a net loss for the year of about \$100,000, which is the Bell Company's side of the story. What I know is that the motives for its establishment stated in this book are entirely incorrect, and that far more important issues than even \$100,000 a year were and are concerned.

Dr. Mavor attributes the establishment of the system solely to a desire on the part of the government "not to promote the public interest in any real sense, but to promote the political interest of the government body," by "bringing forward some project which might be popular without being politically dangerous," and he states that the only reason advanced for its introduction was that rates could be reduced. In short, according to him, the system was conceived solely in political iniquity and recklessness. It is a pity that the eminent professor, who made his "enquiry" only in 1914, had not kept his own eyes and ears open from 1903 to 1908, while the press was full of the real "facts." He would have learnt that the Bell Company was then tearing up the pavements and streets of the cities and towns of Canada in defiance of municipal protests, and claiming the right to erect its poles and plant its wires in every highway, at its own will, was rapidly establishing an uncontrolled monopoly in Canada, and was engaged in extensive Parliamentary fights with various cities and towns and the Unions of Municipalities, which were attempting to amend its exorbitant charter powers. In 1904, the Provincial Union of Manitoba Municipalities was formed as a branch of the Union of Canadian Municipalities and took up the fight. In that province another and very serious consideration was added. The greatest evil of prairie life in the West was the isolation of the farmer, his wife and family. In practice the Bell Company interested itself only in the telephone business of towns and saw no profit in rural lines or connections. When rural companies were formed, it generally refused them connection, and at the same time discouraged such exchanges for fear of their growing into rival concerns, consequently the farmer and villages continued in isolation.

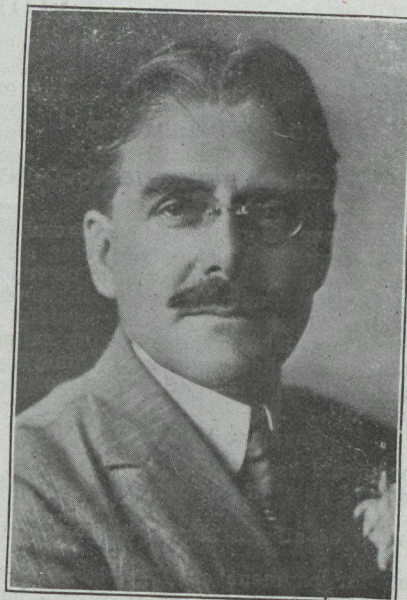
The demand for public ownership, which had arisen in the Union of Canadian Municipalities as a partial remedy for abuses by the Bell system, was pressed on the attention of the Manitoba Legislature by the Union of Manitoba Municipalities, and did not arise with the politicians at all. It was a widespread demand, concurred in by both parties in the Legislature. The proposition particularly appealed to one gentleman, now deceased, the late Honorable Colin Campbell, Attorney-General of Manitoba, who

VITAL AND MUNICIPAL STATISTICS.

The new Dominion Statistician, Mr. R. H. Coats, has already shown determination to make his department a living factor in the social life of the nation. He has just completed a valuable symposium on Vital Statistics, based on the experience of other countries, particularly the United States; to get first hand knowledge of which Mr. Coats has spent some time in the Washington Bureau of Statistics, probably the most complete in the world. He is also carrying on the policy worked out and suggested time and time again to his predecessor by the Union of Canadian Municipalities, namely the correlating of municipal statistics with the idea of securing a basis on which to build up a uniform system along the lines of memoranda compiled by a special committee of the Union, composed of the late Dr. Morley Wickett, of Toronto, and Mr. H. J. Ross, of Montreal. Mr. Coats, who is visiting the West to seek the co-operation of the Provincial and Municipal statistics bureaus, is preparing a report on the subject of uniform municipal statistics and accounting and it is to be hoped that the matter will be taken up seriously at the coming convention of the Union.

GOVERNMENT TELEPHONES (Continued).

became the father of the scheme actually adopted, and put into it all his zeal, knowledge, labor and devotion, so much, in fact, that it probably brought on his early decease. I knew his attitude and motives because he not only corresponded with myself as a representative of the Union of Canadian Municipalities, but took the trouble to journey from Winnipeg to Montreal for the purpose of learning many facts and figures, then collected by the Union. Instead of being a disreputable political adventure, as Dr. Mavor is led to think, the inception of the system by Mr. Campbell and the municipal leaders of his province, arose primarily out of the desire to abolish the great evil of the isolation of the farm. I am certain that that was also my own chief motive in pressing and helping to shape the suggestion. Our other leading motive was to free all our municipalities—and all Canadian citizens—from monopolistic domination; this was effected by clauses we introduced into the Dominion Railway Act, giving control to the Railway Commissioners and municipalities over telephone rates and franchises. Whatever mistakes may have been afterwards committed by the Manitoba Government, and whatever their political history may have since been—those two outstanding ends were incontrovertibly accomplished. And even if, as Dr. Mavor contends, 100,000 a year were spent over cost, the accomplishment of those ends is worth far more than any such sum. While had the Bell Company been free to consolidate its monopoly, far larger money losses would have occurred to the people of Manitoba. In addition, the system of provincial ownership was soon adopted by the neighboring prairie provinces of Saskatchewan and Alberta, and thus a vast boon extended to the whole of Western Canada. The



ALDERMAN LESLIE BOYD, K.C.,

Chairman of The Grain Commission of Canada.

The President of The Union of Canadian Municipalities, Ald. Leslie Boyd, of Montreal, who has just been appointed to the head of the grain commission in Canada, first entered the Montreal City Council in 1910. He was re-elected in 1912 by a large majority and by acclamation in 1914 and 1916. As an alderman he was elected by the City Council to represent the city on the Board of Protestant School Commissioners. Since his election to aldermanic honors Mr. Boyd has taken a keen interest in the work of the Union of Canadian Municipalities becoming first vice-president in 1915. At the last convention Alderman Boyd was unanimously elected President of the Union, which position he now resigns from to take up his new duties. He is succeeded in the presidency by Mayor Stevenson of London, (Ont.)

mass of the people in all the three Provinces are well satisfied with the system, and would never go back to their former conditions. The analogy of the post office is somewhat akin. The Post Office has its defects, but nobody would choose to go back to the private messenger system. The government which introduced the Manitoba phones in course of time became rotten and fell from power. But I do not notice that the new government proposes to abolish phone public ownership. Its financial statement for its loan of \$2,000,000 just received, states as follows: "Telephone system (self-supporting) — \$11,052,327."

I do not wish to be recorded as an enemy of the Bell Company. In Canada it has been faithfully served by many splendid officials, has conducted the essential part of its business soundly and given good service in the cities and towns. But it was necessary to oppose it in the respects I have mentioned, and if it proposes to use the book "Government Telephones," and Dr. Mavor's name and position as a general weapon against public ownership of telephones, it may be necessary to oppose it again.

Municipal Accounting

E. T. SAMPSON.

Secretary-Treasurer of Outremont, Que., and Member of the Society of Municipal Treasurers and Accountants (Eng.)

(THIRD INSTALLMENT).

COMPILATION OF REVENUE ACCOUNT.

Expenditure.

In practice the voucher system will be found most satisfactory for the purpose of clearly recording each item of expenditure as it occurs. A tabular form of voucher register with which all accountants and bookkeepers are acquainted is essential with the voucher system.

Although I do not submit the following ruling to be a complete form of voucher register, I think it will well illustrate my meaning, viz.: (See pro forma voucher at end of series).

Payment Vouchers:

Strict rules should here demand:

1. Certificate of chief of department recommending payment.
2. Verification of all extensions by treasurer's department.
3. Approval for payment certified by chairman of finance committee (committee's approval can be appended to list of monthly accounts only).
4. Resolution of Council approving and ordering payment.

Urgent and Emergency Payments:

Special authorization of mayor shown on voucher, and afterwards submitted to the above procedure although payment has already been made.

Payment of Wages:

Can best be made through separate pay roll bank accounts; drawing cheques for each employee and covering same weekly by transfer cheque from current a/c. Pay roll cheque books upon carbon copy duplicating system will here be found most useful. Cheques returned from bank may be pasted over duplicates and reconciliation with pay roll bank a/c and wages sheet is easily ascertained

and preserved; there is also the additional advantage of being able to refer at any time to any pay roll cheque of remote date.

In order to protect the city from loss by peculation embezzlement or any frauds, the preparation of the pay roll and cheques should be distributed over as many members of the staff as possible, viz.:

1. Time sheets prepared and certified by foreman and initialed by timekeeper.
2. Wages sheets prepared by wages clerk and certified by timekeeper as to hours and rates of pay.
3. Extensions and additions certified by wages clerk.
4. Total and distribution certified by engineer.
5. Pay roll cheques prepared by treasurer's clerks from pay roll sheets and signed by treasurer who shall first verify total of cheques issued with summary of pay roll.
6. Payment of cheques should be by clerk attached to treasurer's department who has had no hand in the preparation of the pay roll. Actual payment should be in the presence of timekeeper and foreman.
7. The duties of the various clerks should also occasionally be changed.
8. Transfer cheque from current a/c for total of pay roll should be signed in the usual way, viz.: by mayor and treasurer.

Nomenclature of Accounts:

While considerable latitude should here be given to each authority in order to meet the peculiar demands of the district, I am strongly of the opinion that under general or main headings a good standardized system should now be adopted throughout the country. Valuable comparisons between municipalities could then be obtained.

Cost Accounts.

Wherever direct labor has been employed a system of cost a/cs will be absolutely necessary if the works department is to be expected to justify its existence. All the columns of detailed expenditure shown in the voucher register should thus be dissected in the cost ledger. Self detailed form of ruling will here be most suitable, viz.:

City of
 Cost Account.
 Reference to Minutes.....
 Date of approval of Contract.....
 Account for year ending 19....

Voucher No.	Amount per Voucher Register	PRIME COSTS			ONCOSTS				Remarks
		Wages	Stores	Other Mtls.	Stable	Use of Plant	Depreciation Accident Fund Insurance	Sup'tn	
		Further Details to suit Requirements			Per Horse Diary	Pro Rata apportionments			

The cost ledger itself should be on the loose leaf system and guide tags, similar to those in use in general ledger (referred to hereafter) used to divide the accounts according to the order of revenue account adopted.

General or Control Ledger.

The posting of the disbursements to the general ledger from the voucher register should be made in monthly totals. This ledger will deal only in aggregate figures, when precise and detailed information is required it must be supplemented by the particular detailed ledger.

The general ledger is perhaps the most important book

of the whole system, connecting and controlling as it does all the funds and sources of revenue of the municipality. Experience has proved the great saving and advantage of the loose leaf principle with guide tags for the broad divisions, viz.:

1. Revenue accounts.
2. Collection accounts (taxes, licenses, fees, etc.)
3. Suspense accounts.
4. Municipal property accounts.
5. General improvements accounts.
6. Local improvements a/cs.
7. Miscellaneous (sundry Drs., sundry Crs.)

MUNICIPAL ACCOUNTING (Continued).

All the accounts appearing in the general ledger should be connected to their particular detailed ledger by an adjustment account appearing in the latter book. By this means, will be greatly secured the well established principle referred to in the departmental report on local authorities accounts (England), 1907:—

"Interdependence of accounts in a connected system is far preferable to a mere multiplication of books of accounts from the point of view of real efficiency."

"All ledgers should be self-balancing."

A few remarks here on principles of valuation will not be inappropriate.

Valuation of Land.

Generally upon the superficies of the lots and at so much per square foot. Assessors in practice generally base their figures upon the most recent bona fida sales of the property or of similar adjoining property; part only of the value thus ascertained is often adopted. The municipality is thus protected from sudden decreases in land values.

Uniformity of practice would here be very useful in affording valuable comparisons between cities and districts.

Valuation of Buildings.

Many methods here prevail. The following are commendable:

By aggregate cubature (cubical capacity) of building at so much per cubic foot, according to class of construction.

By earning power:

By capitalizing the estimated annual revenue receivable as rent.

Valuation of Public Utility Corporations' Assets.

No definite and workable basis is yet established, and many wealthy companies are escaping taxation to which they are justly liable. To a small extent the municipalities can obtain redress by imposing a business tax, but strong representation should be made to the proper government authority for general powers to assess all public utility companies owning, operating and enjoying monopolies in the several municipalities, whether in virtue of special franchises, charters or general law—in the case of:

Water companies.

Gas and electric companies.

Tramways.

Telephone companies, etc.

An assessment based pro rata on the gross profits earned in the several municipalities would be very workable and equitable.

Preparation of Valuation Roll.

Care must be taken that all laws and by-laws re homologation be here duly observed.

Description of each property to be assessed and its dimensions should be written up before or during the time that the assessors are placing their values on same. Extensions and additions should all be completed before the deposit of rolls for inspection. Names of proprietors and final summaries should be all written in before the roll comes into force. No incomplete or penciled entries should be permitted. Names of occupants, boarders, etc., for electoral and other purposes should be obtained first by requesting each resident to fill up and sign a census report. Reports can be filed in binders and kept for use in preparing voters' lists, jury lists, etc.

Control Account.

Control account of total annual amounts due for the several taxes imposed will be kept in general ledger and credited monthly with taxes paid per tax cash book.

Tax Accounts.

Tax accounts giving as much information as possible should be prepared in duplicate (manifold system or typewritten). Duplicate copies can be filed alphabetically in cabinets and abstracted therefrom when payments are made. These paid duplicates should then be filed away numerically, number being repeated in special column in Tax Cash Book—a valuable reference for posting to collection ledgers will be thus obtained.

From unpaid duplicates a list of taxes in arrears can be quickly prepared at any time and verified whenever necessary by balances shown in control account of general ledger.

Arrears.

If no provision is possible for arrears brought forward in current collection roll, a special arrears ledger must be installed. Care should be taken never to receive and credit current taxes until all arrears on such property have all been settled.

Sales by Sheriff.

When claims for taxes have to be made hereunder, care must be taken that all arrears, interest (and commutations in case of local improvement taxes) are claimed. Attendance at the sale by treasurer or assistant is necessary for the purpose of insuring that the accepted bid is at least sufficient to cover;

1. Sheriff's Costs.
2. Curator's and Solicitor's Costs.
3. Claim of school authorities for taxes, etc.
4. Claim of church authorities (fabrique), taxes, etc.
5. Claim of municipality for taxes and commutations.

I believe this is the order of procedure, and the city's representative should be prepared to bid to that amount, otherwise losses will certainly be incurred.

It will be found convenient in practice to transfer to personal ledger all claims upon the sheriff, also claims for taxes from sundry proprietors which have been remitted to the solicitor for collection.

Licenses, Business Taxes, Etc.

This source of revenue, when same has been decided (under special by-law) by the municipality to be collected, should all be collected within the financial year, for the following reasons:

1. Annual tax only and levied on occupant and itinerant traders.
2. Persons assessed may remove from municipality at any time.
3. Is not a privileged claim upon real property. Cooperation with police department will be very desirable. Police departments in smaller municipalities can easily undertake to deliver all demand notes.

If total amount of a/c prepared is credited to ledger account, a reserve should immediately be set up for uncollectibles and unforeseen losses of all sorts.

Private Works—Sales of Materials, Etc.

Casual revenue of this nature should be collected upon written reports from engineer's department. It is presumed that except in urgent and trivial cases the requisite authority of the council ordering such work is duly recorded on the minutes.

Rents, Interests, Tolls and Other Dues Receivable.

A rent, etc., collection ledger, should be installed showing:

1. Particulars of property or asset.
2. Name of person or company liable.
3. Annual or periodical amount due.
4. Arrears brought forward.
5. Interest on arrears.
6. Total amount due.
7. Date of payment.
8. Cash book reference.
9. Amount paid.
10. Amount carried forward.
- 10a. Interest accrued carried forward.
11. Total.

Total recapitulated and credited in general control ledger.

Sundry Income.

1. Police court fines, etc. (should have reference to court register).
 2. Certificates and office copies issued by clerks.
 3. Miscellaneous.
- May be credited from cash book to revenue account.

Local Improvement Works in Progress.

Share of engineering expenses and cost of administration: The rate per cent charged for these services to the sundry local improvement accounts (viz.: sewers, macadam, sidewalks, etc., to be charged to proprietors of any street or section of street), should be carefully considered by finance committee and council. The rates charged by consulting experts to private enterprises in the district will assist the municipality in arriving at a fair basis of these charges.

Interest on Local Improvement Outlays.

Interest should be calculated from the date of each cash payment at the same rate per cent as the municipality itself pays to the bankers until the date of the imposition of the actual tax.

The Journal will be the most convenient medium for recording the two last classes of income.

(To be continued).

A Municipal Savings Bank

The City of Birmingham (Eng.), has now a municipal savings bank, under the name of the Birmingham Co-operative Savings Bank. When the scheme was first suggested, much opposition had to be met, and many obstacles overcome. But already the bank has proved a success, not only as a financial institution, but as an inducement for workers to save. In a recent address before the Birmingham Rotary Club, Mr. J. P. Hilton, the manager of the municipal bank, gave an outline of the scheme, from which we quote the following:—

The Birmingham Corporation Savings Bank is a democratic institution. Its aim is to induce those who have to work for their living, whether in factory, shop, or office, to save a portion of their savings so as to enable them to more easily withstand any trials through which they have to pass. It has been designed to provide an easy and simple method of banking which will be acceptable to the workers, one which will meet their convenience, and which will secure their confidence. The working man is not attracted to saving by the holding out of fancy inducements; he is not influenced by terms which, from an investment point of view, are very profitable. He is more concerned with two things; first, a satisfactory security with a reasonable interest, and, second, with a ready means of being able to get out any money he may want without fuss or trouble. Were it otherwise, he would long ago have shown his appreciation of the various schemes for saving which offer inducements but do not give him what he wants. Well, the municipal savings bank meets the requirements of the workers as far as we are enabled to go. It provides for deposits by coupons, which he can obtain to whatever extent he likes at a time when he has the money, i.e., when he receives his wages. It gives him the fullest security in the shape of the corporation standing as guarantor of the principal and interest; it gives him 3½ per cent. on every completed pound; and it enables him to withdraw any portion or the whole when he wants it.

Encouragement to Save.

We are all conversant with the temptations which beset a man when he has the "necessary" in his pocket. Many a good resolution of a would-be saver has been broken owing to his having to pass shops, with enticing displays in the windows, on his way to the Post Office Savings Bank, and in order to assist in keeping those good resolutions a very simple scheme has been devised for a man to save at his works by having a portion of his wages paid to him in coupons. The ordinary procedure is for a man to fill up a form authorising his employer to pay him a certain amount of his wages in coupons. On pay-day he gets his coupons, which have gummed backs, and puts them on a card until the card contains the value of one sovereign. He then sends the card to the bank, and it is exchanged for a bank book in which is credited the value of his coupons. Some works, owing to depleted staffs and extra demands upon the clerical department, are co-operating by selling the coupons at stated periods. Despite the atmosphere of suspicion which was said to be prevalent amongst workers to saving any money in this fashion, it is clearly proved that a great proportion of Birmingham workers wisely prefer this method to none at all. From my experience it is difficult to say whether the distrust or suspicion is more pronounced in the case of the employer having anything to do with the matter than it is in the case of those at home gaining any knowledge of what is being saved. It is astonishing to find such a large number of firms who are the custodian of their employees' bank books at the express wish of the depositors themselves; and it is no less surprising to receive requests that the bank books may be kept at the bank or sent to a friend rather than to the private address of the depositor.

A Trade Union Suggestion.

Does not this prove that workers are not afraid of their employers having anything to do with the method or system? And why should they be afraid? What advantage is it to any employer? In the North the workers have proved that it does not act to their detriment, and in the Midlands they can equally prove it. It has created amongst the workers in the North a spirit of independence; it has developed the habit of saving, which, when inculcated in childhood will grow in strength during manhood. The man who has £20 (\$100) in the bank possesses just so much independence. He is to that extent away from starvation point. He has £20 (\$100) of his own before he needs to seek either char-

ity or public assistance. It creates in him a healthier outlook on life, it is manifested in his conduct in the workshop, and it is reflected in his character and his general mode of life. Surely it will be admitted that a worker who is thrifty is a much greater asset to his employer than one who spends all he gets and pays no regard to the proverbial rainy day. The establishment of the municipal savings banks is the dream of trade unionists come true, and it is fitting that Birmingham, so renowned for its progressive local government, should be the first to establish such a bank. It has again acted up to its appropriate motto "Forward."

Bank Co-operation.

It has been no easy task to get the bank established. Many meetings have been held in works, messrooms, and offices; many interviews have taken place, many explanations have had to be made, and many obstacles removed, but it has been accomplished with gratifying results. At the outset it was realized that three essentials were required to meet with success; first, the co-operation of the employers; second, the confidence of the workers; and, third, the co-operation of the joint stock banks, and these three have been secured. The co-operation of employers has been of a remarkable character. It has manifested itself in many ways, and to such an extent that other municipalities are astounded at what has been accomplished. Not only have employers given facilities for addresses to be delivered to their workers by members of the city council and others; not only have they themselves contributed in this direction by having chats with their workers; not only have they willingly responded to requests for the distribution of literature, etc.; but they have in many cases offered handsome prizes and other inducements to encourage their workers to develop the saving habit, or, may I say, to acquire the coupon habit. It has been a very great privilege to me to meet with such courtesy and cordial co-operation from employers whose high public spirit I cannot speak too eulogistically of.

Corporation Guarantee.

The confidence of the workers has been secured. It is demonstrated by the steady increase, week by week, in the number of depositors; it is to be observed in the regularity of the savings; and it is confirmed by the modest demands on the withdrawal account. If proof were needed of this confidence Christmas time provided it. To anyone conversant with workers' savings banks Christmas is an anxious time to the management of such banks. It is a common practice amongst the working classes to take advantage of their banking account to provide for the hundred and one things which are desired to make the festive season a happy one, and even in war time, and realising all that war means, there were to be thought of those who are doing battle for us and the young children. But in connection with the bank, I may say that the deposits exceeded the withdrawals by 600 per cent. The confidence of the workers has been obtained, inter alia, because of the security which a huge corporation like Birmingham is able to give. To know that the rate fund is behind the bank is sufficient for the workers of this city. They have some conception of what that means, and so long as they know that their money is safe, and that they can have it when they want it, they are satisfied and will settle themselves to the habit of saving. The possession of a bank-book to a working man is a very valuable possession, and he realises it as such. Many times does he secretly look at it and chuckle quietly as the savings mount up, and not unfrequently does he hold out a hand to help a comrade on the path of saving. The comradeship of the working classes is a very real thing. They will endure much together, and even in the matter of savings this comradeship is noticeable. They like to come to the bank with their workmates just as they go to and from their work, and often they bring along with them another saver. I am convinced that Birmingham workers can save equally with workers in any other centre, and now that they have a unique opportunity it is up to them to do so. By utilising the bank they are performing a very patriotic action. They are helping their country to provide the sinews of war, because 80 per cent. of the money saved is invested in Treasury loans, etc., for the purpose of the war, and cannot be used for any other purpose, and from the information in my possession I can say that they have, through the medium of the bank, contributed magnificently to the country's needs.

The Coupon System.

The co-operation of the joint stock banks has also been

INFANT MORTALITY IN ENGLAND.

The war has made many reformations possible in England which could have been brought about in peace times only by years of struggle. For example, the loss of life on the battle field has brought forward the question of infant mortality, and it has been realized by those who are thinking, and discussed at length by such papers as *The Times*, that the best way to increase the population of England is to start out by saving the lives of the babies who die from preventable causes. Naturally this at once centres attention upon the cause which results in the death of so many babies, and one of the questions which has been agitated at great length in England is the possibility and necessity of obtaining a pure milk supply. The report to the local Government Board by Dr. Claypole, has summarized the results obtained elsewhere, and the conclusion has been reached that there is no evidence that pasteurization in any way effects the digestibility of milk, while it does eliminate all possibility of transmitting communicable diseases, such as typhoid, tuberculosis, etc. One of these investigating physicians collecting material for the British Government, visited the laboratories of the Health Department of Toronto last summer, and after going over our system, expressed himself as delighted with the thorough way in which our milk supply was controlled. He also said that it seemed a curious thing that he had to come to the colonies to learn advanced methods in the control of such things as the milk problem, but such was undoubtedly the case. — *Toronto Health Bulletin*.

MUNICIPAL SAVING BANKS (Continued).

secured. Coupons are obtainable at the numerous banks and branches in the city, and the local managers have by their co-operation contributed in no small measure to the success already achieved. Every effort is made to meet the requirements of employers promptly, and while complaints occasionally come to hand of the difficulty of meeting certain demands, every effort is made to reduce inconvenience to the minimum. I am personally indebted to the local managers of the joint stock banks for their assistance to me, and I frankly acknowledge it. They are proving that in Birmingham they have no hostile feeling towards the bank. I believe there is room for the municipal savings bank as well as the joint stock bank, and I also believe that they can be exceedingly beneficial to each other and to the community in general. The municipal savings bank does not, nor will it, in my opinion, poach on the preserves of the joint stock bank. It caters for quite a different class of people, and ought to have its place in the banking system of the country.

Appealing to the Sporting Element.

In connection with depositors in the savings bank, a novel feature has been introduced by way of a prize scheme. Certain gentlemen have placed in the hands of the editor of the Birmingham *Daily Mail* moneys to be given as prizes to certain fortunate depositors at the conclusion of the war. The prizes range from £100 (\$500) to £5 (\$20), and number about thirty. The conditions laid down to qualify for one or other of these prizes provide that a depositor must have been on the books of the bank for six months when the draw takes place; must be on the books at the time of the draw, and must have saved equivalent to 10s. (\$2.50) per quarter during the period of membership. The bank as such has nothing to do with the prize scheme, and beyond furnishing particulars of depositors who are eligible to take part in the draw, the arrangements will be in the hands of the editor of the *"Daily Mail."* Workers of Birmingham have, therefore, an additional inducement offered to them which ought to attract them. In my opinion this prize scheme is a practical way of arousing an interest in the important subject of saving. Most of us plead guilty to a love of sport, and whenever there is the element of chance there is a stronger inclination to effort. This applies to both sexes, for do we not see it in the practice of offering prizes at whist drives, etc.? But this scheme differs from other prize schemes in so far as there is no entrance fee. The money represents free gifts, consequent only upon a person saving his own money, and some lucky depositor at the conclusion of the war will receive £100 (\$500), another £50 (\$250), and so on.

We hope to be able to demonstrate that the bank meets a need in the city, that it is fulfilling the purpose for which it was established, and that it justifies a permanent place in our municipal life. Some day it will be opportune for the figures to be made known, but at the present time I am not able to go farther than to say that the bank has entirely surpassed the expectations and hopes of the promoters, and it is marching rapidly on the road to a most pronounced success.

CONTRIBUTING TO SOCIETY.

A. Writer on criminal anthropology says that a person is valuable to the community in the proportion he contributes to it more than he receives from it; yet about all most people can do is to earn a living, not to mention saving something for old age. This, in the minds of many sociologists, measures the worth of individuals to society. It expresses the reverse side of the idea Mr. Roosevelt had in mind when he said a man should pull his own weight.

The anthropologist's definition of a person's social worth is susceptible of two interpretations. If applied to the Spenders, the Idle Rich, the Social Parasites, who produce little or no wealth, but spend much. It is quite evident that they are a liability instead of an asset to the community. But if applied to the great mass of laboring people who receive a bare living—and this appears to have been the intent of the statement—it falls wide of the mark.

The great mass of people in this country live meagerly and leave little beyond funeral expenses. But to say that such persons are of no value to the community is to do violence to reason. These persons may not receive from society more than they contribute to it, but that is the fault of society and not theirs. They contribute to society far more than they get. It is because they contribute more than they receive that the Spenders are able to receive more than they contribute. Amend the laws that govern the distribution of wealth so that no one can get more than he earns, and it will very quickly be apparent that those laborers who appear to be earning only what they spend are in reality earning much more.

If men and women who are able to lay by nothing are of no value to society their removal would be no loss to any one. But imagine for a moment what would happen if this large part of society were removed. There would be a decrease of at least half of the population, with a stoppage of nearly half the business. Much of the land now in use would be given up, with a corresponding shrinkage of the value of what remained in use. Sociologists may be able to persuade themselves that persons unable to save are of no value to society, but they will have a hard time making landowners believe it.—S. C., in *The Public*.

INDUSTRIAL DISPUTES ACT.

In the March issue of the Cornell Law Quarterly appears a very interesting and instructive analysis of the Canadian Industrial Disputes Investigation Act, and its working, by Mr. Howard S. Ross, K.C. This probably is the first time that this Act has been dealt with in an impartial spirit, and as there is much dispute as to whether or no the act is workable in settling strikes—at least in a manner satisfactory to the workers—a perusal of Mr. Ross's article is worth while.

TOWN PLANNING IN AUSTRALIA.

Mr. Chas. C. Reade, who has been lecturing throughout Australia, has been appointed town-planning adviser to the South Australian Government, and town-planning associations have been set up in every state of the continent.

WOMEN ON MUNICIPAL COMMITTEES.

The city council of Petrograd has recently agreed to appoint a certain proportion of women to several of its committees.

SUPERFICIALLY CANADIAN.

There is a danger that the immigrants may accept the lower rather than the highest things in Canadian life. The children of the immigrant may become superficially "Canadian" and yet lose that on which alone true character can be built.

We need interpreters—those who can mediate between the Canadian and the newcomer; who can present to the newcomer in an attractive light the best that we have developed in our social and national life and can, on the other hand, sympathetically present to the Canadian the needs and possibilities of those who are casting in their lot with us.—J. S. WOODSWORTH.

The improvement of our municipalities is not to be gained primarily by tinkering with laws, but by the growth and training of truer-hearted citizens.—Prof. Frank A. Fetter.

Look out for **PREPAREDNESS NUMBER** to be published next week.

The Union of Canadian Municipalities

Officers and Executive for the year 1916-1917

President:
MAJOR T. J. STEVENSON, M. D.
 Mayor of London, Ont.

Hon. Secretary-Treasurer:
W. D. LIDTHALL, Esq., K. C.,
 Ex-Mayor of Westmount, Que.

1st Vice-President:
W. D. L. HARDIE, Esq.,
 Mayor of Lethbridge, Alta.

2nd. Vice-President:
A. E. TODD, Esq.,
 Mayor of Victoria, B. C.

3rd Vice-President:
R. T. HAYES, Esq.,
 Mayor of St. John, N.B.

ONTARIO

Vice-Presidents:

- 1st. **J. W. Nelson, Esq.,** Controller, Ottawa.
- 2nd. **A. M. Edwards, Esq.,** Mayor of Galt.
- 3rd. **John O'Neill, Esq.,** Controller, Toronto.
- 4th. **W. B. Bugoyne, Esq.,** Mayor, St. Catharines.
- 5th., **T. J. Patton, Esq.,** Mayor North Bay.

BRITISH COLUMBIA

Vice-Presidents:

- 1st. **M. McBeath, Esq.,** Mayor of Vancouver.
- 2nd. **A. M. Tyrrell, Esq.,** Mayor of Kamloops.
- 3rd. **A. W. Gray, Esq.,** Mayor, New Westminster.
- 4th. **H. McKenzie, Esqs.,** Mayor of Nanaimo.

NOVA SCOTIA

Vice-Presidents:

- 1st. **F. W. Doane, Esq.,** City Engineer, Halifax.
- 2nd. **P. F. Martin, Esq.,** Mayor of Halifax.
- 3rd. **A. Roberts, Esq. K.C.,** Solicitor, Bridgewater.
- 4th. **W. A. Richardson, Esq.,** Mayor of Sydney.

Official Organ

"THE CANADIAN MUNICIPAL JOURNAL"
 Coristine Bldg., Montreal.

HIS WORSHIP THE MAYOR
 AND COUNCIL.

DEAR SIRS,

By the cordial invitation of His Worship Mayor Stevenson, the Board of Control, and City Council, the Annual Convention of the Union of Canadian Municipalities will be held in the City Hall, LONDON, Ontario, Monday, Tuesday and Wednesday, August 27th, 28th and 29th.

Your Council is earnestly invited to send one or more delegates to take an active part in the proceedings. Some unusual problems are facing our municipalities this year, on account of the war conditions, and the fullest discussion is necessary.

You are particularly requested by our Executive to draft any resolution, or any municipal question you wish to be brought before the Convention.

The Union of Canadian Municipalities offers an opportunity to get, at first hand, information for the betterment of YOUR municipality. "Out of the Work of the Union have grown all the laws protecting our highways and streets from the encroachment of Railway, Telephone, Electric and other Companies as well as of irresponsible charter sharks; all the provincial telephone systems; all the great public hydro-electric plants and commissions; and all the town-planning organizations, and civic improvement leagues have been in the same current of effort. No municipal body in the world has accomplished so much in these fields, and Canadian municipal men have every reason to be proud of the achievements of the Union."

Matters of the greatest importance to municipalities are happening this year—such as revision of the Railway Act, the contest of Toronto with the Canadian Northern interests, the After-the-War preparations, etc., etc.

A programme of important civic matters is now being prepared, and a copy will be sent you, with full particulars, at an early date.

Faithfully yours,

W. D. LIDTHALL,

Montreal, April 21st, 1917.

Hon. Secretary-Treasurer.

ANNUAL MEETING OF NATIONAL CONFERENCE OF CHARITIES.

Municipal ideals and experience will take up a large part of the discussions at the National Conference of Charities and Correction this year, which will hold their forty-fourth annual meeting at Pittsburgh, June 6-13.

The problems of community life, too, will be taken up strongly in the programme. Professor James Ford, of Harvard University, will speak on distributive co-operation, and Mr. George F. Willett of Norwood, Mass., on industrial organization. Taxation of land values, the gathering of moral forces, federation of social agencies, and Negro migration into northern cities are other main lines of discussion. In the division of mental hygiene one finds the out-patient mental clinic featured, and in the health division, the organization of public health centres. John A. Kingsbury, Commissioner of Charities of New York City, and Elmer L. Scott, Director of Public Welfare of Dallas, Texas, will speak on municipal welfare work. The subject of social insurance is to be brought before the conference by Edward T. Devine, and Morris Hillquit, of New York.

The idea of community life in the country apparently is to be given unusual emphasis at these Pittsburgh meetings. A separate division is accorded to the subject under the chairmanship of Professor John M. Gillette, of the University of North Dakota. He is the author of a work on "Constructive Rural Sociology." One of the subjects will be the organization of social work in rural parts. In characterizing the trend this discussion is likely to take, the secretary of the conference, William T. Cross, has said: "The Shame of the Cities," which was the catchword of popular muck-raking literature a few years ago, has its counterpart these days in the evils which spring up through lack of vigilant organization in rural life. The 'beast in the jungle' that we used to hear about, thrive because the good people in the cities were not properly organized. The evils in the social and political life of rural districts now-a-days, is not so aggressive. It is due largely to apathy. But it exists nevertheless."

"The Abolition of Poverty" has been selected as the subject of the president's address by Frederick Almy, secretary of the Charity Organization Society of Buffalo. As many as thirty-five hundred delegates are expected from the United States and Canada, and the officials of the organization are adapting the discussions so as to suit the special problems of Canadian communities.

C. P. R. WEST LINES SEND 3,814 MEN TO WAR.

Three thousand eight hundred and fourteen employees of the western lines of the Canadian Pacific Railway have enlisted for active service.

The list, which has just been completed, includes enlistments from August, 1914, to December 31, 1916.

Seventy-four employees have been killed and 256 have been wounded, the report shows.

The Canadian Pacific Railway is credited with giving more men to the British army than any organization in Canada. On January 1, 7,114 employees of the railway had enlisted. Of this number 176 have been killed and 415 have been wounded, according to the records office.

Among the dead heroes are sons of many prominent railway officials. In April, 1916, Capt. the Hon. Alfred Thomas Shaughnessy, son of Lord Shaughnessy, president of the railway, was killed in action. The only living son of Lord Shaughnessy, Capt. the Hon. W. J. Shaughnessy, has gone overseas with the Irish Rangers to take the place of his brother, who died in the defense of the Empire.

In the records of enlistments on the western lines, clerks head the list with a total of 778. Winnipeg shops are second with 362. The wipers are third of the various departments with 287. Firemen are fourth with 277, beating out the brakemen by two, the latter having 275.

The police department of the railway has given 76 constables to the army. Many of these are veterans of other wars. The majority of the men passed through the South African campaign, and are winners of both the King's and Queen's medals.

The tabulated list of employees of the western lines of the railway on active service issued by the records office follow: Surveyors, 1; assistant engineers, 2; resident engineers, 3; locomotive engineers, 41; firemen, 277; wipers, 287; conductors, 23; brakemen, 275; yardmen, 82; Winnipeg shops, 362; Ogden shops, 174; various shops, 293; clerks, 778; checkers, 122; porters, 179; foremen, 16; sectionmen,

113; janitors and cleaners, 11; hotel, 25; agents and operators, 161; constables, 76; B.C.C.S. and B.C.L. and R.S., 98; B. and B. men, 83; construction department employees, 32; miscellaneous, 300. Total, 3,814. Casualties: Killed, 74; wounded, 256.

RISKS OF CITY STREET CLEANING.

Street-cleaning does not appear to be a particularly hazardous occupation, yet every year eight out of ten "white wings" are physically disabled from causes in their occupation, according to a recent study by Dr. S. I. Rainforth, chief physician of the Department of Street Cleaning, of New York City, discussed by Dr. Creighton Barker as follows:—

For \$2.50 a day 6,000 of these street-cleaners, mostly aliens, work ten hours and remove refuse and dirt from 1,500 miles of street. This is equivalent to a road sixty feet broad extending from New York to Kansas City. In a year there are nearly 813,000 cubic yards of "sweepings" collected. All days and every day this work must be done—on pasty asphalt under the scorching August sun, in driving rain, in sleet and snow. It is not remarkable that 80 per cent. of them are disabled each year. Dr. Rainforth's figures show that there are 55,484 cases of disability each year, causing a loss of approximately 56,000 days.

The incidence of certain types of diseases is interesting to note. Accidents, including freezing and sunstroke, lead the list, causing 18 per cent. of the disabilities. Conditions resulting from improper and intemperate living, such as gout and chronic arthritis, alcoholism, diseases of liver, kidneys and digestive tract, cause 16 per cent. This gives a fair idea of the type of labor employed. Myalgia, neuralgia and neuritis, results of great physical exertion, are responsible for 14 per cent. Diseases resulting from exposure to cold and lowered vitality, such as pneumonia, bronchitis and influenza, but not including tuberculosis, cause 9 per cent. of the cases of disability.

It might be supposed that the tuberculosis incidence would be high, considering the constant inhalation of street dust and the exposure to severe weather conditions. The fact is, however, that all forms of tuberculosis caused but 1.4 per cent. of all disabilities.

A morbidity rate of 80 per cent. is extremely high. To combat it the city of New York gives free medical attention to all employees, and requires a complete physical examination once each year. In the Department of Street Cleaning seven physicians give their full time to this service. By this means, the average time lost per man compares favorably with the per capita loss of time because of illness in normal groups. The time lost by employees of the Department of Street Cleaning averages 7.8 days per man, a slightly higher percentage than that found by Frankel and Dublin in their North Carolina sickness survey. There white males (in all occupations), lost 7.6 days a year; Negroes, 7.4 days.

Certain preventive measures have been adopted also, to lower the personal hazard. Most unique among these is the practice of sweeping "against the traffic," that is, sweeping in the opposite direction to which the traffic is going. This simple measure has done much to lower the number of accidents caused by vehicles. First-aid kits are conveniently placed in all stables and docks; and the application of tincture of iodine to all wounds as soon as possible has perceptibly lessened the number of days lost because of infected wounds.—The Survey.

SPIRIT OF MUNICIPAL GOVERNMENT.

"Municipal governments, to be successful, must be a community affair rather than the affair of the few groups or of a few individuals, as it has too often been in the past. That means a new attitude on the part of the citizens. The government of a town will be no better or no worse than the citizens of that community—a statement that you have often heard. But every now and then some of us say we can have better government in this community if we have the commission form of government; or if we have the commission form of government, we say if we only had the old mayor system back we could have a better government; or if we could combine these two together and have a managerial system we could have a better government. I think it is safe to say that there will be no better government in any community merely on account of the change in the form of government. It must rest fundamentally with the spirit of the citizens themselves. — President F. C. McVery, University of Dakota.

Municipal Taxes

By JOHN PERRIE.

Mr. John Perrie, Deputy Minister of Municipalities for the Province of Alberta, in his annual report, gives a very interesting review of the different methods of taxation. The report in part, reads as follows:—

The problem as to the best methods of taxation is always an interesting one, and one in connection with which there are great differences of opinion.

Until quite recently the system of levying taxes on land values only was almost universal throughout the province. The limiting of taxation to a tax on land values has worked out successfully in the rural portions of the province, and any attempt to change this method of taxation in the rural municipalities so as to require a farmer to pay more taxes because he has been energetic enough to put up good buildings and good fences, and cultivate his land, would be strongly resented by practically the entire rural population.

Widen the Basis.

In the towns and villages there has, during the last year or two, been a tendency to ask for a widening of the basis of taxation, and to include not only a tax on business, but a tax on buildings, improvements and personal property.

The reason of the desire to make a change appears to be based on the understanding that if a tax is levied on buildings, improvements and personal property as well as on land, the unoccupied lands within the municipality would escape with a lighter tax and that, therefore, the parties holding these unoccupied lands would, because of their getting off with a smaller tax than under the system of taxation of land values, continue to be revenue producers, whereas, if the taxes were as high as those on improved property similarly situated the vacant land would be allowed to become the property of the municipality.

One criticism offered to this method of reasoning is that it is only deferring the evil day, and that unless the owner ceases to be a taxpayer in any case, thus putting the whole burden of taxation on the shoulders of the parties owning improved lands. To support this criticism it is frequently pointed out that much of the unoccupied lands in the urban municipalities is not likely to be needed for building purposes for many years, and the reducing of taxation on such unoccupied lands would, therefore, be of no real benefit, although in some cases the reduction of the assessed value of some of the vacant lands might well be considered. On the other hand, it is pointed out that the larger buildings benefit more from fire protection, police protection, and so on, than do the unimproved or less improved properties. This is no doubt quite correct to a certain extent, but the question as to how far this should be allowed to change the system of taxation is a question which requires very careful consideration. It is possible that this matter might be balanced by a special tax on certain areas to meet the amount due for the increased benefits.

Not to Hinder Development.

On the whole, it would appear that the unrest in connection with the system of taxation that should be followed has, to a great extent, been brought about because of financial troubles rather than an absolute verdict condemning the system of taxation of land values only. The taxation of buildings and improvements is frequently looked on as a tax on an industry. A United States authority on taxation has, in this connection, made the statement that no taxes should be levied on anything that is movable, otherwise, it will be driven away. There is much that can be said in connection with the values of the different systems of taxation, but whatever system of taxation is adopted, it is well to give every consideration to the fact that the taxation of industry or anything produced by the expenditure of capital or labor should be taxed as lightly as possible so as to place no hindrance in any way to the full development of a man's powers for social enjoyment or progress in his work, calling or profession.

Tax on Personal Property.

With reference to the tax on personal property or a tax on any movable business, it should be borne in mind that such a tax, especially that on personal property, is usually difficult and expensive to collect. The experience of some of the larger cities, more particularly some of the larger United States cities, in connection with the personal property tax has been that small results have been obtained from such tax, and the difficulties in properly administer-

ing any tax ordinance providing for such an assessment are very great. Exemption of personal property, buildings and improvements cannot help to encourage development along business lines, and such development is the real source of growth in any urban centre. It brings in its wake a steady demand for land on which to build residences, business places and so on, and creates real land values. One general question of interest in connection with taxation is the enforcement of taxes. Many different methods are proposed from time to time, but the provision under which tax enforcement proceedings are taken at the beginning of each year seems to give good satisfaction if it is consistently carried out from year to year. For example: One of the towns which has carried out tax enforcement proceedings from year to year reports that at the beginning of this year it had only some seven parcels of land on which it carried out tax enforcement, and another town had only eight parcels of land that qualified for the tax enforcement return, while a number of the rural municipalities have made such progress that the collection of arrears of taxes has ceased to be one of their problems. If some method of tax enforcement is consistently followed from year to year, the ratepayers will get into the habit of paying their taxes promptly, and there is no reason why delinquent taxes should be one of the great problems as it is at the present time. The large list of delinquent taxes on the records of some of the municipalities is a matter for the serious consideration of the ratepayers, and they cannot hope to have anything like the results they ought to have from their municipal organization until this problem is settled.

PUTTING SOLDIERS INTO REPAIR.

In a pioneer Western town, about twenty years ago,—writes a correspondent,—my watch stopped. Neither winding nor shaking would make it go on again.

Seeing "Watch-maker and Jeweller" over a store, I went in.

The man opened my watch, turned his head first on one side and then on the other, and said he thought he could put it all right. When I got it back, it went for half an hour, then stopped again.

He had done it more harm than good. It cost twice as much to repair, in the end, as if he had never touched it.

That man, I found, was a carpenter by trade. He had done his best — but a carpenter's "best" for a disabled watch is not quite so curative as his best for a rickety chair.

It was not a carpenter's job.

When a soldier comes home "out of repair," we have got to remember that a man is a more delicate and complicated piece of mechanism than even a watch. Also, he is infinitely more valuable to his country than the most marvellous chronometer ever invented.

The country naturally insists that the most skilful surgeons and physicians shall be employed to heal the soldier's physical ills.

But that is only the first stage of the disabled soldier's treatment. Equal skill and thoroughness must be employed to equip him—educationally—with technical knowledge and practice for rejoining the ranks of industry.

Even then we cannot turn him adrift. We must exert continued and systematic care to see that he gets work suited to him, or trouble is sure to follow.

The Military Hospitals Commission of the Dominion Government, and the Provincial Commissions and local Committees in co-operation with it, are trying to do this. If any one can help them, either with practical suggestions or offers of steady work, it is his duty to do so.

No two leaves on a tree have precisely the same shape, and no two men are exactly alike. Each man's capacities have to be carefully studied, to avoid putting round pegs into square holes.

On the care we take now, depends the answer to the question whether our returning soldiers are to be a burden or a help to themselves and their fellow-citizens.

Mere quacks and theoretical cure-alls are mischievous enough at any time, and especially at times of great emergency like ours.

This is no carpenter's job—and not even a watchmaker's.

Municipal Finance

JAMES MURRAY.

THE RESEARCH BUREAU AND THE COUNCIL.

That citizens' research leagues can do real constructive work in the community and consequently be of welcome help to the municipal council is exemplified in the Winnipeg Research League, which is under the presidency of Mr. S. R. Tarr, the able editor of *Western Finance*. In a recent bulletin is set forth a common sense review of the property values, and assessment of the big western city, and as some of the suggestions might be useful to other cities, we reproduce part of the bulletin below:—

The Citizens' Research League of Winnipeg considers that the present Act, so far as it relates to assessment, is on the whole equitable and up-to-date. When the League's Special Committee on Assessment began its work, there was still in force the system whereby one board acted both as a Board of Valuation and also as a Court of Revision, sitting in judgment on its own work. This was open to serious objection, and the committee had in mind recommending the appointment by the Council of an independent Appeal Board or Court consisting of three men to be known as Revising Commissioners, the remuneration of each member to be, say \$100.00 per year. It would be the duty of such a court to hear evidence offered on both sides and to give a final ruling as to the value placed for assessment purposes, alike as to land, buildings, business tax, and all other matters in dispute. If the Revising Commissioners, after the hearing of evidence, changed the value of a piece of land, they would have the power to change the value of contiguous land as well.

Recent Change in Method of Fixing Assessments.

However, since the League's committee discussed this matter with the Assessment Commissioner and the Board of Valuation and Revision, an important change has been made in the practical procedure of fixing and revising assessments, with a view to overcoming objections previously obtaining. The 1917 assessments have been made by Commissioner Donley and his staff of assessors. The Board of Valuation, though acting in a general consulting capacity with the Assessment Commissioner as a member of it, did not take part in the actual making of the individual assessments—the idea being to leave it more free to judge the work of the assessors in any cases appealed to in its capacity as a Board of Revision, with Mr. Donley not sitting.

In view, therefore, of the important change now put into effect, the League believes that careful observation should be given to its working out in practice this year, before any proposal for further change is considered.

Reduction in Assessment.

After careful consideration of the assessed value of the land, the committee is of the opinion that in the 1916 assessment a great portion was assessed for more than its value—or more than its earning value under normal conditions, provided buildings were erected which would bring the highest rent that the location would warrant. It is believed that many properties in Wards 2 and 4 were assessed for much more than their intrinsic value, and that, generally speaking, Wards 3 and 5 were next highest compared with actual values; and then Wards 6, 1 and 7. The assessed value of land alone for the year 1916 was \$187,955,970, out of a total assessment of \$278,732,370. It was the opinion of the committee that the assessment of land should be reduced by \$25,000,000 to \$35,000,000. A high assessment with a low rate is not in the best interests of any city. It is an incentive to extravagance, and there seems to be no honest reasons in its favor.

The object of the present Assessment Act and the appointment of the Commissioners was to take the assessment out of the hands of the City Council and to value lands at their full value, and buildings at two-thirds of the amount of the value by which the buildings increase the value of the land at the date of the assessment. As this assessment is made annually, there is no necessity to value land at a prospective future value. It is generally admitted that the proper basis of assessment of land is to estimate as near its actual value as possible, and if the Assessor is in doubt, it would seem better to keep the assessment value on the low side rather than the high.

To Encourage Fire-proof Buildings.

It is also recommended that every encouragement be given to the erection of fire-proof buildings, which would

Our Services At Your Disposal

Municipalities that are contemplating the issue of Bonds, the investment of Sinking Funds, or any change in financial policy, are cordially invited to avail themselves of our services as specialists in—

Municipal Securities

Wood, Gundy & Company

Head Office:

C. P. R. Building,
Toronto

Branches:

Montreal
London

Saskatoon
New York

EMILIUS JARVIS

A. D. MORROW

EMILIUS JARVIS & CO.

MEMBERS TORONTO STOCK EXCHANGE

GOVERNMENT
MUNICIPAL
—AND—
CORPORATION
SECURITIES

JARVIS BUILDING - TORONTO

H. O'HARA & CO.

(Members Toronto Stock Exchange)

Stocks & Bonds dealt in on all Exchanges.

Government, Municipal and other Bonds bought and sold.

Western Municipal, School District and Telephone Debentures specialized in. Secretary Treasurers should communicate with us regarding the disposal of their issues.

ROYAL BANK BUILDING
TORONTO

CANADIAN GOVERNMENT MUNICIPAL AND CORPORATION BONDS

Service to Municipalities

Fifteen years of service to Canadian Municipalities and Investors in Canadian Municipal Debentures enables us to give every facility to Municipalities in marketing new issues. Our organization is represented in the principal markets of Canada, Great Britain and the United States.

Correspondence invited.

THE
DOMINION SECURITIES
CORPORATION LIMITED

ESTABLISHED 1901

HEAD OFFICE: 26 KING ST. EAST, TORONTO
MONTREAL LONDON, E.C., ENG.

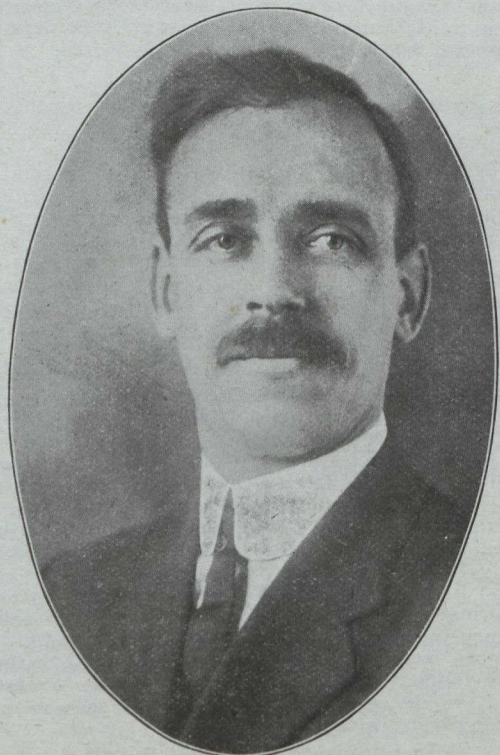
be a means of assisting to eliminate the possibility of a general conflagration. It can readily be seen that if Winnipeg had a large number of fire-proof buildings, the chances of a large conflagration would be very materially reduced, and from an insurance standpoint a great saving would be effected on all properties. The wording of the present Act gives the Assessor power to encourage the construction of fire-proof buildings by placing a low assessment on these buildings, compared with the actual cost of erecting them. It is difficult so to word an Act as to meet the case of each individual, and a matter of this kind has to be left to the judgment of the Assessors and the Board of Valuation.

Assessors Must be Experts.

In order to have the City assessed equitably, there are required the services of capable and expert men, qualified to estimate the cost of a building, the value by which the land is increased by a building, and the value of the land itself, as well as to calculate intelligently what would be a normal and equitable rental for different business properties, and in case of appeal to state in evidence the reasons why they made such values. In order to secure and retain men of this type, adequate remuneration should be paid for their services. The average salary of these men has, in the past, been less than \$100.00 a month, which is not sufficient remuneration to pay men qualified to fill such positions. The League is, however, glad to learn that recently these salaries have been increased. This Department is one that requires a number of experts. The League recommends that the salaries of the Assessment Commissioner and the Chief Assessors should be carefully looked into and made commensurate with the importance of the work they are called upon to do.

UNIFORM MUNICIPAL STATISTICS.

For a long time need of standardized municipal statistics and standardized accounting has been obvious. The desirability of combining all the functions of the Provincial Government bearing directly on municipal government has also been clear. The necessity of a specialist service provided by the Provincial Government at cost to the municipalities who may desire it, is becoming increasingly evident. All these needs a Provincial Bureau of Municipal Affairs could supply. The bureaus and department of municipal affairs which have been established in several Canadian provinces have grown out of the Local Government Board system in operation in England. While the English method allows for more direct control than is contemplated for the proposed Ontario Bureau, its undeniable success has direct bearing on our local problems.—H. L. Brittain.



A. C. EMMETT,
Sec., Manitoba Good Roads Association.

RECENT MUNICIPAL AWARDS.

MASSEY, ONT.

An issue of \$1,500 6 per cent. 10-year bonds has been awarded to Messrs. C. H. Burgess and Company, Toronto.

CHAPPLE, ONT.

An issue of \$11,000 6 per cent. 15-year bonds has been purchased by Messrs. C. H. Burgess & Company, Toronto.

WATERLOO, ONT.

Messrs. Brent, Noxan and Company have been awarded an issue of \$1,811 6 per cent. 15-instalment bonds.

LEAMINGTON, ONT.

Messrs. C. H. Burgess & Company were the successful tenderers for the \$49,174 6 per cent. 15-instalment bonds. Price, \$49,742.

COCHRANE, ONT.

An issue of \$40,000 5 per cent. 30-instalment bonds was awarded to the Canada Bond Corporation. Price \$37,752.

ALBERTA BOND SALES.

The following Alberta Department of Education School district debentures have been purchased by H. O'Hara & Co., of Toronto:

Fask Consol., \$1,000 6 p.c., 10 instalments; Bouvien, \$350. 7 p.c., 10 instalments; Sutherland, \$390, 7 p.c., 10 instalments;; Scollard, \$1,000, 7 p.c., 10 instalments; Kleskum Hill, \$1,200, 7 p.c., 10 instalments Crickdale, \$1,200, 7 p.c., 10 instalments; Harvest Vale, \$1,400, 7 p.c., 10 instalments; Northland, \$1,600, 7 p.c., 10 instalments.

SASKATCHEWAN.

The following is a list of bonds reported sold by the local government board:—

School District—Leggott, \$1,600. H. O'Hara and Company, Toronto.
Rural Telephone Companies.—Riverhurst, \$12,000. W. L. McKinnon and Company, Toronto; Odessa, \$1,400. W. L. McKinnon and Company, Toronto; Maryfield, \$1,100, Nay and James, Regina.

The following Saskatchewan school district bonds have been awarded to Messrs. W. L. McKinnon and Company, Toronto; Assiniboia, \$9,000; Valley Centre, \$10,000; Wilton, \$20,500; Bench, \$10,000; and Biggar Cochery, \$19,800, and the following rural telephone companies' bonds: Pambam, \$21,500; Prairie Rose, \$9,000.

SASKATCHEWAN.

The following issues of bonds have been purchased by Messrs. W. L. Mackinnon and Company, Toronto; Gerald Rural Telephone Company, \$2,400 8 per cent. 15-instalment; Dafeo Rural Telephone Company, \$4,700 7 per cent., 15-instalment; Rainton Rural Telephone Company, \$1,000 7 per cent. 15-instalment; and Young Village \$1,800 8 per cent. 10-instalment.

WINNIPEG, MAN.

Greater Winnipeg Water district liabilities, as shown in the annual report are as follows: \$1,283,112 4½ per cent. inscribed stock; \$3,500,000 5 per cent. 5-year temporary bonds; Bank of Montreal, bills payable, secured by treasury bills \$400,000; sundry creditors, \$485,099; contractors tender deposits, 5500,056. The reports have been audited by Messrs. Ronald Griggs and Company, chartered accountants, Winnipeg.

STATISTICAL CO-OPERATION.

Canada is at last threatened with a complete, efficient and economical organization for the compilation of statistics. Mr. R. H. Coats, the new Census Commissioner, instead of ignoring the existence of provincial statistical organizations as calmly as these have always ignored the Dominion organization, is actually touring the West in order to make arrangements with the provincial authorities for co-operative collection of information.—Financial Times.

EDWIN HANSON

WILLIAM HANSON

THE OLD AND RELIABLE HOUSE
OF

HANSON BROS.,
BOND DEALERS
MONTREAL

Are prepared to consider the purchase of entire issues of bonds made by municipalities large or small

Correspondence Solicited

HANSON BROS.,
164 ST. JAMES STREET,
MONTREAL

Established 1883

Municipal Debentures

Bought and Sold

With offices in Canada, Great Britain and the United States, we are especially equipped to give municipalities expert advice in regard to the purchase and sale of municipal debentures in the principal markets of the world.

HARRIS, FORBES & CO

INCORPORATED

157 James St.

Montreal

WE are prepared to purchase
entire issues of

MUNICIPAL BONDS

and invite enquiries from
Municipal Authorities as
to market conditions
when new financing is
contemplated.

ROYAL SECURITIES CORPORATION Limited

164 St. James St., MONTREAL

13 King St. East, TORONTO

Correspondence Invited

We are always open to
purchase entire issues of
Municipalities whose af-
fairs are kept in sound
condition.

R. A. DALY & CO.

Bank of Nova Scotia Building,
TORONTO

NOVEL PLAN FOR FINANCING THE CONSTRUCTION OF GOOD ROADS.

Late in February the General Assembly of North Carolina enacted a statute embodying a highly ingenious, and yet at the same time seemingly altogether practicable, plan for enabling the counties of the State to obtain funds on very favorable terms for the construction of permanent good highways. The plan was devised some six years ago by Mr. W. S. Wilson Legislative Reference Librarian of The North Carolina Historical Commission, Raleigh. The proposed act putting the plan in operation was first introduced in the General Assembly during the session of 1911 but its novelty was such as to make the Legislature hesitant about adopting it. The same experience was had with the bill in the session of 1913 and it became apparent that considerable educational work was necessary before the principles underlying the plan would be thoroughly understood. From 1913 to 1917 Mr. Wilson did not intermit his efforts to make both the public and the legislators of North Carolina understand the benefits that would accrue from the measure; and, as has been said, complete success was achieved at the recent session of the General Assembly only a single vote in each house being recorded against the measure.

North Carolina has almost 50,000 miles of highways, of which less than 15 per cent. have been improved to the extent of being what are known as "surfaced roads."—and this in spite of the fact that the people of the State have for a number of years past been thoroughly alive to the necessity of good highways and have been spending, through the counties, municipalities, etc., over \$2,000,000 a year in highway construction and maintenance. It is obvious that in order to bring the entire road system of the State up to a reasonable standard of excellence a very large sum of money will be required—a sum estimated by Mr. Wilson at over \$32,000,000 for construction purposes alone. Accordingly, the essence of his plan, now enacted into law, is to enable the counties of the State gradually to put this great sum into road construction without at the same time imposing an unbearable burden of debt and taxation upon their inhabitants. According to his proposal, the programme of construction will extend over forty-one years, during which period the State will be procuring an annually decreasing amount of money on its own bonds at 4 per cent., and lending it to the counties at 5 per cent. From the accumulating surplus produced by the 1 per cent. difference what is in essence a sinking fund will be steadily building itself up, out of which in the end the totality of the bonds issued will be paid off.

Since the enactment of the law Mr. Wilson has himself given an exposition of his plan in a letter, of which the essential portions are here given:

"For a number of years I have been very much interested in building good roads throughout the State. Realizing that there must be some good reason for the defeat of so many bond issues submitted for the purpose of building roads, I began to examine the matter and found that the main trouble was that a bond issue under the old system meant the settling upon the present, as well as the future generations, a debt which was never repaid. Very few bond acts made provision for a sinking fund at all; and in those cases where a sinking fund was provided for, the money was usually diverted to some other purpose, so that when the bonds matured there was no money to pay them, and they had to be refunded by continual bond issues, which meant a never ending debt upon the people who voted for it.

"A striking illustration of this fact is found in the county of Mecklenburg. In 1870 Mecklenburg County issued \$300,000 in bonds for railway construction. These bonds bore 6 per cent. interest, making a total annual payment of \$18,000 during the life of the bonds, which was twenty years. In 1890, when these bonds became due, Mecklenburg County had had to pay \$360,000 in interest alone, and had no sinking fund to retire them. New bonds were issued running for thirty years, and bearing a like rate of interest. These bonds will mature in 1920. During these thirty years Mecklenburg County will have paid in interest alone \$540,000, or a total in interests since 1870 of \$900,000, and the original sum of \$300,000 is still due; and they have not got a dollar to pay towards reducing the debt, so that in 1920 this original \$300,000 will have cost Mecklenburg County \$900,000 in interest and the principal is still due.

"To meet a situation of this kind, I began to work out a system by which advantage might be taken of the State's credit so as to provide a method by which coun-

ties might get cheaper money for road building, and at the same time arrange for the repayment of the principal when due. With this idea in mind, I worked out a system by which bonds of the State which bear 4 per cent. interest could be sold and the proceeds therefrom loaned to the several counties at 5 per cent. interest, so that the difference of 1 per cent. could be used by the State as a sinking fund to retire said bonds at maturity. The result of these efforts was a bill which was introduced at that session in practically the same form as the one which has recently been enacted into law. It passed the House readily enough, but was defeated after a hard battle in the Senate. It met a like fate in 1913. In 1915 I did not have it introduced. In 1917 the bill was introduced again by Representative Clark, of Pitt, to whose hard and efficient work is largely due the credit of its having been enacted into law.

"This act provides, first, for the issuance on July 1, 1917, of \$400,000 in State bonds, which are to be sold and the proceeds loaned to the counties complying with the provisions of the act for road building. On January 1, 1918, an additional road fund of the same amount is provided for, which is made up of the surplus of 1 per cent. received from the counties in excess of the amount paid on the State bonds as interest, together with a sufficient State bond issue to make a total sum of \$400,000. The bond issue each six months is reduced according to the increase in the surplus, so that on January 1 and July 1 of each year a fund of \$400,000 is provided. This sum is made up of a continually decreasing bond issue. At the end of forty-one years, the bond issue will have decreased to zero, whereas the surplus will have increased to a sufficient amount to pay the interest on the outstanding State bonds, and at the same time leave a surplus sufficiently large to retire the first issue of State bonds made under the act. The decreasing issues, becoming due each six months thereafter, will be met in like manner from the surplus, after paying the interest on the outstanding bonds.

* * * *

"Under this bill, during the next forty-one years, a road construction fund will be provided which amounts in the aggregate to \$32,800,000. Of this amount, about \$20,000,000 will be represented by State bond issues, and the balance by the surplus fund. The State has security for its \$20,000,000 bond issue, while holding county bonds aggregating \$32,800,000. Under this act, at the expiration of the forty-one-year period, the county is discharged from further liability after having paid only 5 per cent. annually during that period for the money which it has been paying 5 per cent. for interest only; so that in the end the county saves certainly as much as the principal originally borrowed. For each \$100,000 loaned under this plan, the county will pay back \$205,000 by \$5,000 a year for forty-one years.

"Had this system been in operation at the time of the sale of the Mecklenburg County bonds heretofore referred to, Mecklenburg County would have saved at least \$585,000 for what it has already paid, and is due to pay, so that one can readily see that this act will not only serve as a great stimulus for road building, but will at the same time save millions of dollars to the people of the State in floating county bond issues for road purposes."—Economic World.

MR. GEO. H. OLNEY, MANAGING DIRECTOR OF
EUGENE PHILLIPS ELECTRICAL WORKS,
RETIRES.

It was with regret that the many friends of Mr. Geo. H. Olney, Managing Director of the Eugene F. Phillips Electrical Works, Limited, heard that on the advice of his doctor he had given up active connection with the company which he has done so much to build up. Mr. Olney took over the management of Eugene Phillips Works eighteen years ago, and has built it up from a very small concern to one of the largest works of its kind. The Phillips firm is now ranked in size with the first half dozen manufacturers of insulated wire and cable on this continent. Mr. Olney carries with him in his retirement the good wishes of all who have come in contact with him. His successor will be appointed next month.

The Imperial Bank of Canada has recently opened branches at New Norway, Alta., under the management of Mr. C. C. Case, and at Peace River, with Mr. K. Anderson as manager.

The Corporation of the City of Vernon, have subscribed \$25,000 of its Sinking Fund to the Third Canadian War Loan.

MUNICIPAL DEBENTURES BOUGHT

MUNICIPALITIES WILL PROFIT
BY COMMUNICATING WITH US
WHEN CONTEMPLATING THE
ISSUE OF DEBENTURES.

C. H. Burgess & Company
Traders Bank Building - Toronto, Can.

The Canada Bond Corporation Limited

59 Yonge Street, Toronto

—Buys—

Municipal Debentures

And Acts as Financial Agents for
Municipalities

CONSULT THEM

WM. C. BRENT.

HAROLD BRENT.

BRENT NOXON & CO.

DOMINION BANK BUILDING,
TORONTO

DEALERS IN

MUNICIPAL DEBENTURES

Highest Market Prices Paid

Correspondence Solicited

MUNICIPAL LOANS

Having our own offices in Montreal, Toronto, Boston and New York, we offer exceptional facilities to municipalities desiring money in the form of long or short term loans.

We invite correspondence

N. B. STARK & COMPANY

Montreal
Toronto

New York
Boston

MURRAY, MATHER & CO.

"PAVING ECONOMY."

The Editor:

The writer has had a request from one of the trade periodicals to know whether or not stone-filled sheet asphalt paving, as recommended in the above book, is controlled through any monopoly of patents, or otherwise.

In order that there may be no misunderstanding, would advise you that there is no control whatever of this type of pavement, as the writer lays it and recommends it. Any one who has or will secure the necessary information and equipment, can proceed to do the work without leave or license from anyone.

This form of pavement is not very different from the fine asphalt concrete and the so-called Topeka mixtures. It varies in grading in being more of a sheet asphalt; in fact, it is a standard sheet asphalt to which fine stone chips have been added in a quantity and size that fall within the Topeka Court Decree.

Very tours yours,

C. A. MULLEN.

(Mr. Mullen, who wrote an interesting article on the subject of Street Paving Economy in the February issue of this journal, has just published a book on the same subject, copies of which, we understand, can be had from the author).

EDUCATE THE CHILD.

Children who are taught in the public schools the dangers of matches, gasoline and carelessness generally get a training which will last them through life, especially if this subject is kept before the public as it doubtless will be hereafter. Education is usually a matter of slow development, especially along lines where custom and habit have developed almost inborn carelessness. It is worth while to try to correct the careless habits of adults it is certainly far more useful and profitable to start children right before they have developed such habits, especially if the instruction will have an indirect benefit upon their homes and the public generally. Several foreign authorities credit much of their low loss ratio to their instruction on fire hazards in the public schools, and its reflex influence on the home.—Exchange.

No department of the C. P. R. has more care or thought devoted to it than the handling of baggage, for the traveller owes so much of his good temper and comfort to the knowledge that his trunks are handled carefully and delivered on time. The amount of baggage handled on so large a system is phenomenal—no less than 7,899,652 individual pieces being forwarded during the year 1916. There must have been quite a number of families on the move, for the list includes 28,309 baby carriages. Milk cans form an important element in the work of the baggage department, as in order to ensure the rapid delivery of milk from the farm to the city dweller passenger trains are used. The total number of milk cans forwarded during the year 1916 was 1,162,472.

The most convincing proof of the care with which baggage is handled on the C. P. R. is given in the figures of claims paid on loss, damage, pilferage. Out of nearly eight million pieces of baggage handled, the amount paid on loss was only \$1,791.79; on damage only \$1,669.08; and on pilferage only \$571.07, the cost to the company in these respects being only five cents per hundred parcels.

This is a record of which Mr. J. O. Apps, the popular general baggage agent of the Canadian Pacific Railway, may well be proud, and is sufficient to show that the so-called "baggage smasher" has been entirely eliminated, if indeed, he ever existed, between Digby, N.S., and Victoria, B.C.

NOTICE

APPLICATIONS WILL BE RECEIVED BY THE CITY OF PRINCE GEORGE UP TO THE 5TH DAY OF MAY, 1917, FOR COMPLETE AUDIT OF CITY ACCOUNTS, TO DATE. APPLICANTS MUST BE CHARTERED ACCOUNTANTS. ADDRESS ALL COMMUNICATIONS TO H. A. CARNEY, CITY CLERK, PRINCE GEORGE, B. C.

Any investor or manufacturer who wants the

FACTS

about any CANADIAN CITY or TOWN with the view of investing or establishing an industrial enterprise, may have full information — *without one cent of cost* — by applying to the

Bureau of Information
CANADIAN MUNICIPAL JOURNAL
221 Coristine Bldg., Montreal, P.Q.

BANK OF MONTREAL

Established 100 Years (1817-1917)

CAPITAL (PAID UP)	- - -	\$16,000,000
REST	- - -	\$16,000,000
UNDIVIDED PROFITS		\$1,414,423
TOTAL ASSETS	- - -	\$365,215,541

BOARD OF DIRECTORS

Sir Vincent Meredith, Bart., President.
C. B. Gordon, Esq., Vice-President.

R. B. Angus, Esq.	H. R. Drummond, Esq.
A. Baumgarten, Esq.	Maj. Herbert Molson, M.C.
Wm. McMaster, Esq.	Sir William Macdonald.
E. B. Greenshields, Esq.	C. R. Hosmer, Esq.
Lord Shaughnessy, K.C.V.O.	D. Forbes Angus, Esq.
	Harold Kennedy, Esq.

Head Office : MONTREAL

General Manager -- Sir Frederick Williams-Taylor, LL.D.
Assistant General Manager -- A. D. Braithwaite.

BRANCHES and AGENCIES { Throughout Canada and Newfoundland;
Also at London, England;
And New York, Chicago and Spokane, in the United States.

A GENERAL BANKING BUSINESS TRANSACTED

H. J. ROSS

ACCOUNTANT TRUSTE

(Member, Special Committee of the U.C.M. on Uniform Municipal Accounting)

Municipal Audits a Specialty
Municipal Bonds Negotiated
Estates Managed

180 St. James St., Montreal

BUSINESS FOUNDED 1795

American Bank Note Company

ENGRAVERS and PRINTERS

MUNICIPAL DEBENTURES AND CHEQUES
A SPECIALTY

HEAD OFFICE:

208-228 WELLINGTON STREET, OTTAWA

Branches: MONTREAL, TORONTO, WINNIPEG.

LOANS MADE TO:
BONDS BOUGHT FROM:

MUNICIPALITIES

A. P. LESPERANCE, Manager
City and District Savings Bank
MONTREAL

THE ROYAL BANK OF CANADA

Capital Authorized..... \$ 25,000,000
 Capital Paid Up..... 12,911,700
 Reserve and Undivided Profits..... 14,300,000
 Total Assets..... 270,000,000

HEAD OFFICE - MONTREAL

BOARD OF DIRECTORS:

Sir Herbert S. HOLT, Pres. E. L. PEASE Vice-Pres.
 E. F. B. JOHNSTON, K.C., 2nd Vice-Pres.

Jas. Redmond	C. S. Wilcox
G. R. Crowe	A. E. Dymont
D. K. Elliott	C. E. Neill
Hon. W. H. Thorne	Sir M. B. Davis
Hugh Paton	G. H. Duggan
Wm. Robertson	John T. Ross
A. J. Brown, K.C.	R. MacD. Paterson
W. J. Sheppard	G. G. Stuart, K.C.

OFFICERS

E. L. Pease, Managing Director, C. E. Neill, General Manager,
 F. J. Sherman, Asst. Gen.-Manager, W. B. Torrance, Supt. of Branches.

Branches in every Province of the Dominion of Canada and in Newfoundland; in Havana and throughout Cuba, Porto Rico, Dominican Republic, Costa Rica, and Venezuela; Antigua, St. John's; Bahamas, Nassau; Barbados, Bridgetown; Dominica, Roseau; Grenada, St. George's; Jamaica, Kingston; St. Kitt's, Basseterre; Trinidad, Port of Spain and San Fernando; British Guiana, Georgetown, New Amsterdam and Rose Hall (Corentyne); British Honduras, Belize.

LONDON, England, OFFICE—Princes St., E. C.
 NEW YORK AGENCY—Cor. William and Cedar Sts.
 Savings Department at all Branches.

The Canadian Bank of Commerce

PAID-UP CAPITAL \$15,000,000
 REST 13,500,000

HEAD OFFICE—TORONTO.

Sir Edmund Walker, C.V.O., LL.D., D.C.L., President.
 John Aird, General Manager.
 H. V. F. Jones, Assistant General Manager.

Branches of the Bank in every Province of Canada and at the following points outside Canada:

UNITED STATES,

NEW YORK—16 Exchange Place,
 Francis, Kemp & Stephenson, Agents,

Portland, Ore.; San Francisco, Cal.; Seattle, Wash.

NEWFOUNDLAND, St. John's.

GREAT BRITAIN, London.

MEXICO, Mexico City.

Agents and Correspondents Throughout the World.

ESTABLISHED 1875

IMPERIAL BANK OF CANADA

CAPITAL PAID UP - - - - \$7,000,000
 RESERVE FUND - - - - - \$7,000,000

PELEG HOWLAND, President
 E. HAY, General Manager.

Head Office - TORONTO

Drafts and Money Orders sold, and money transferred by telegraph or letter. Interest credited half-yearly at Current Rate on Savings Deposits.

119 Branches in Dominion of Canada

The Merchants Bank

OF CANADA

HEAD OFFICE - - - - MONTREAL

Capital Paid-up \$7,000,000
 Reserve Fund and Undivided Profits. 7,250,984

BOARD OF DIRECTORS:

SIR H. MONTAGU ALLAN, C.V.O., President
 K. W. BLACKWELL, Vice-President
 THOS. LONG ANDREW A. ALLAN F. ROBERTSON
 ALEX. BARNET C. C. BALLANTYNE G. L. CAINS
 F. ORR LEWIS F. HOWARD WILSON A. B. EVANS
 A. J. DAWES E. F. HEBDEN

E. F. HEBDEN, Managing Director
 D. C. MACAROW, General Manager
 T. E. MERRETT, Supt. of Branches and Chief Inspector

A GENERAL BANKING BUSINESS TRANSACTED

The Accounts of Municipalities kept and advances made in anticipation of the collection of taxes; also loans for improvement purposes in anticipation of the issue of debentures.

216 BRANCHES AND AGENCIES IN CANADA

Extending from the Atlantic to the Pacific

SAVINGS DEPARTMENT AT ALL BRANCHES

Deposits received and Interest allowed at best current rates

New York Agency: 63 and 65 WALL STREET

Municipal Securities

For thirty-four years we have specialized in the buying and selling of Municipal Securities and in consequence of this our house offers most excellent opportunities to any municipality desirous of obtaining money by the issue of either short or long term debentures.

We are at all times glad to receive enquiries from municipalities which are contemplating issuing securities and to place the services of our organization at their disposal.

We Invite Enquiries

Hanson Bros.

Bond Dealers Established 1883

164 St. James St., Montreal

W. CHASE THOMSON

Consulting Engineer

M. Can. Soc. C. E., M. Am. Soc. C. E.

SPECIALTY

BRIDGES AND OTHER STRUCTURES

New Birks Building - - Montreal

R. S. & W. S. LEA.

Consulting Engineers

Water Supply, Sewerage and Drainage; Water Purification; Disposal of Sewage and Refuse; Water Power Developments and Power Plants.

Reports,
Designs,
Supervision of Construction

809 New Birks Building
Montreal, Que.

Telephone
Uptown 783

THE ROYAL BANK OF CANADA

Capital Authorized, - \$25,000,000
Capital Paid Up - - 12,911,700

Reserve Funds - \$14,324,000
Total Assets - \$287,500,000

BOARD OF DIRECTORS

SIR HERBERT S. HOLT—President
E. L. PEASE—Vice-President
E. F. B. JOHNSTON, K.C.—2nd Vice-President

JAMES REDMOND	C. S. WILCOX
G. R. CROWE	A. E. DYMENT
D. K. ELLIOTT	C. E. NEILL
HON. W. H. THORNE	SIR M. B. DAVIS
HUGH PATON	G. H. DUGGAN
WM. ROBERTSON	C. C. BLACKADAR
A. J. BROWN, K.C.	JOHN T. ROSS
W. J. SHEPPARD	R. MACD. PATERSON
	G. G. STUART, K.C.

OFFICERS

E. L. PEASE—Managing Director
C. E. NEILL—General Manager
F. J. SHERMAN—Assistant General Manager
W. B. TORRANCE—Superintendent of Branches

BRANCHES

410 Branches throughout the Dominion of Canada, in Newfoundland, the West Indies, London, Eng., and New York, U.S.A.

Statement to the Dominion Government (Condensed) Showing Condition of the Bank on March 31, 1917.

LIABILITIES	
Capital Paid Up.....	\$ 12,911,700.00
Reserve Fund.....	13,471,700.00
Undivided Profits.....	852,346.28
Notes in Circulation.....	21,427,983.49
Deposits.....	227,730,055.95
Due to other Banks.....	9,579,687.09
Bills Payable (Acceptances by London Branch).....	696,752.37
Acceptances under Letters of Credit.....	926,472.19
	<u>\$287,596,697.37</u>
ASSETS	
Cash on Hand and in Banks.....	\$ 56,042,548.20
Deposit in Central Gold Reserves.....	7,900,000.00
Government and Municipal Securities.....	32,231,139.25
Railway and other Bonds, Debentures and Stocks.....	14,397,292.73
Call Loans in Canada.....	11,408,601.25
Call Loans elsewhere than in Canada.....	12,036,717.10
Deposit with Dominion Government for Security of Note Circulation.....	700,340.00
	<u>134,716,638.53</u>
Loans and Discounts.....	144,169,551.16
Liabilities of Customers under Letters of Credit as per contra.....	926,472.19
Bank Premises.....	6,208,557.23
Real Estate other than Bank Premises.....	1,575,478.26
	<u>\$287,596,697.37</u>

A GENERAL BANKING BUSINESS TRANSACTED

Canadian Government
Municipal
and
Corporation Bonds

SERVICE

Experience acquired during more than sixteen years in the bond business places us in a position to give the best possible service to municipalities in the marketing of their debentures.

Kindly communicate with our offices at any time.

Your Inquiries Will Have Our Best Attention.

**THE
DOMINION SECURITIES
CORPORATION LIMITED**

ESTABLISHED 1901
HEAD OFFICE: 26 KING ST. EAST, TORONTO
MONTREAL LONDON, E.C., ENG.

H. O'Hara & Co.

Members Toronto Stock Exchange

¶ Stocks and Bonds dealt in on all Exchanges.

¶ Government, Municipal and other Bonds bought and sold.

¶ Western Canadian Municipal, School District and Rural Telephone Debentures Specialized in.

¶ Secretary Treasurers are invited to communicate with us regarding the disposal of their issues.

*Royal Bank Building
TORONTO*

A. H. B. MACKENZIE ABNER KINGMAN, Jr.

MACKENZIE & KINGMAN

FINANCIAL AGENTS
AND
INVESTMENT BROKERS

Dealers in
GOVERNMENT AND MUNICIPAL
BONDS
and
CORPORATION AND INDUSTRIAL
BONDS AND STOCKS

Orders executed on all exchanges

LAKE OF THE WOODS BLDG.
MONTREAL

CORRESPONDENCE
INVITED

TELEPHONE
MAIN 699

Macneill & Young

TRADERS BANK BUILDING
Toronto, Ont.

**BUYERS
OF
CANADIAN
GOVERNMENT
MUNICIPAL
AND
CORPORATION
BONDS**

Canadian Inspection
and
Testing Laboratories
Limited

Inspecting Engineers, Chemists and
Metallurgists.

Inspection and Tests of Waterworks
and Municipal Supplies

NEW GLASGOW, WINNIPEG, EDMONTON,
VANCOUVER, TORONTO, NEW YORK.

Main Office and Laboratories :

MONTREAL

Established 1874

D. HATTON COMPANY
MONTREAL

LARGEST RECEIVERS AND DISTRIBUTORS OF
ALL KINDS OF

FISH

IN THE DOMINION
Experts in the handling of

Bulk and Shell Oysters

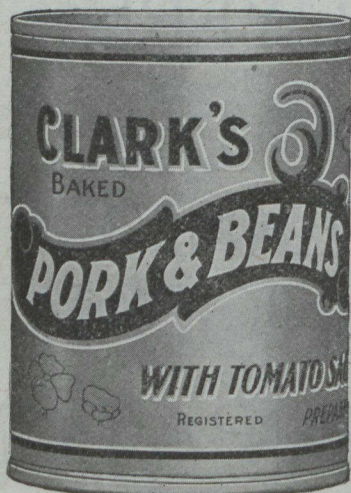
Also the best informed House in the
country on all matters pertaining to
FISH business, and FISH interest gener-
ally.

Get in touch with us when you need to
buy or to sell or to talk FISH.

We will give you satisfaction.

CLARK'S
PORK AND BEANS

Canned Meats, etc.



■ ■
THE LEADERS IN QUALITY
AND PUBLIC FAVOUR

THE BEST THE MONEY CAN BUY

Insist on **CLARK'S**

W. CLARK, LIMITED

MONTREAL

THE MERCHANTS BANK of CANADA

HEAD OFFICE - - - MONTREAL

Capital Paid-up..... \$7,000,000
 Reserve Fund and Undivided Profits..... 7,250,984

BOARD OF DIRECTORS

SIR H. MONTAGU ALLAN, C.V.O., President	K. W. BLACKWELL, Vice-President	
THOS. LONG	C. C. BALLANTYNE	G. L. CAINS
F. ORR LEWIS	F. HOWARD WILSON	A. B. EVANS
ANDREW A. ALLAN	F. ROBERTSON	A. J. DAWES
E. F. HEBDEN	THOS. AHEARN	
E. F. HEBDEN, Managing Director		
D. C. MACAROW, General Manager		
T. E. MERRETT, Supt. of Branches and Chief Inspector		

A General Banking Business Transacted

The Accounts of Municipalities kept and advances made in anticipation of the collection of taxes; also loans for improvement purposes in anticipation of the issue of debentures.

230 BRANCHES AND AGENCIES IN CANADA

Extending from the Atlantic to the Pacific.

SAVINGS DEPARTMENT AT ALL BRANCHES

Deposits received and Interest allowed at best current rates.

New York Agency: 63 and 65 Wall Street

Anglins Limited

Contracting Engineers

65 Victoria Street - Montreal

We Make a Specialty of Rapid Construction

of Reinforced Concrete Buildings, and all Public Buildings, Office Buildings, Factories, Warehouses, Schools, Etc.

Our Operations have Included

work in Montreal, Toronto, Ottawa, Quebec, Halifax, St. John, N. B., Sherbrooke, Brantford, Cornwall, St. John's, P. Q., Gananoque, Ont. Etc.

Recent Contracts have been Executed for:

Williams Manufacturing Co., Loyola College, Toilet Laundry, Protestant Board of School Commissioners, St. Lawrence Sugar Refinery, Belding Paul Corticelli, Bell Telephone, Canadian Ingersoll Rand, Canadian Cottons, Penmans Limited, International Manufacturing Co., Ltd., Canadian Vickers Ltd., Etc.

St. Maurice Paper Company, Limited

Head Office—Board of Trade Building, Montreal

NOW MANUFACTURING

Newsprint - Sulphite - Groundwood

At New Paper Mills, Cape Madeleine, Que.

Lumber Mills at Three Rivers, St. Gabriel de Brandon, Charlemagne,
and Montcalm, Que.

The James Shearer Company Limited

GENERAL CONTRACTORS

Factory Buildings a Specialty

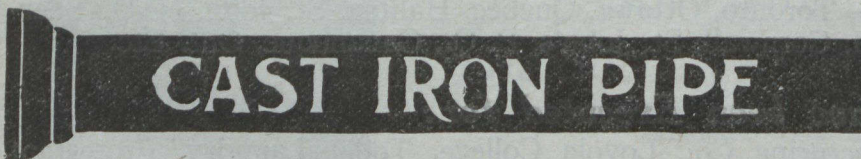
Dealers in

**Lumber and Timber of all Kinds
Mouldings, Beaver Board, Etc.**

SEND TO US FOR QUOTATIONS

Office and Yards - 225 St. Patrick St., Montreal

CANADA IRON FOUNDRIES, LIMITED



Head Office:
Mark Fisher Building
Montreal

**CAST IRON WATER AND GAS PIPE, FLANGED PIPE, SPECIALS,
CASTINGS OF ALL KINDS, CAR WHEELS**

ROYAL SECURITIES
CORPORATION
LIMITED

SAFE INVESTMENTS

SUITABLE FOR

PRIVATE AND TRUST FUNDS
BUSINESS & CORPORATION RESERVES
MUNICIPAL SINKING FUNDS

Send for our list

164 St. James Street Montreal



BY SPECIAL APPOINTMENT
TO HIS MAJESTY THE KING



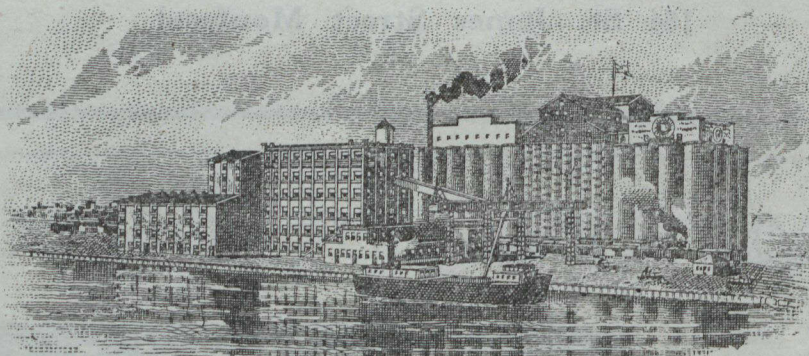
Brands:

Royal Household
Glenora
Special Patent
Manitoba
Ogilvie Oats



The Ogilvie Flour Mills Company, Limited

The Largest Millers in the British Empire



FORT WILLIAM MILLS
THE OGILVIE FLOUR MILLS CO. LIMITED

Mills at Montreal, Fort William, Winnipeg and Medicine Hat

Daily Mill Capacity - - 19,000 Barrels

ELECTRICITY---The Master Workman



The great builder is ELECTRICITY. With its aid your city may attain undreamed of heights of Industrial Advancement.

Enormous bridges, immense ships, great buildings, tremendous factories are carried to swift completion—ELECTRICALLY.

Mills, factories, foundries, steel-works, mines, are operated more economically—ELECTRICALLY.

Electricity is clean power and instant power.

Electricity is light, heat and power shorn of all the old time dangers of operation.

It is the keynote of Modern Progress—of Industrial Advancement—of Civic Preparedness.

The Shawinigan Water & Power Company

"At Your Service"

Canadian Tube & Iron Co. Limited, Montreal

Wrought Pipe.

Bolts, Nuts, Rivets

Bar Iron and Bar Steel

Wire Nails, Smooth Wires, Wood Screws

Works

Lachine Canal

The Foss & Hill Machinery Company

305 ST. JAMES STREET, MONTREAL, CANADA

MACHINERY AND SUPPLIES

We carry a full line of Machine Tools and Supplies.
and Contractors Equipment

Also Concrete Mixers

When in the market for Machinery let us quote on your requirements

THE
J. C. McLaren
Belting Company

Limited

ESTABLISHED 1856

We are Headquarters for all kinds of

- BELTING
- LACE LEATHER
- CARD CLOTHING
- REEDS AND GENERAL
- MILL SUPPLIES

Absolute Satisfaction Guaranteed

HEAD OFFICE AND FACTORY, MONTREAL, Que.

Branches:—

50 COLBORNE STREET, TORONTO, ONT.

80 LOMBARD STREET, WINNIPEG, MAN.

Be Prepared--

By Cutting Down
Unnecessary Expense
THE MARCONI ALL-BRITISH
WIRELESS SERVICE

SAVES YOU

36%

ON YOUR MESSAGES TO
GREAT BRITAIN

FULL RATE RUSH SERVICE

In Code or Plain Language **16c** Per Word

HALF RATE DEFERRED SERVICE

In Plain Language **8c** Per Word

Mark all Messages "Via Marconi"

For Censor Regulations and all other Particulars, apply nearest Telegraph Office or Marconi Co., Shaughnessy Bldg., Montreal.

WE HAVE

Unequaled Facilities

for supplying

POWER

SIX AUXILIARY
POWER PLANTS
of 240,000 H. P.

The Montreal Light
Heat and Power Co.

THE PAINT WITH
THE VALUE INSIDE

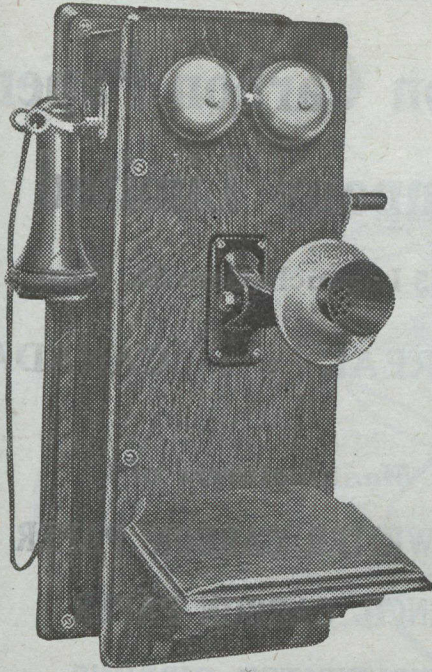


R. C. JAMIESON & CO.

LIMITED

Calgary Montreal Vancouver

Owning and operating
P. D. Dods & Co., Limited



The Importance of High Quality Telephones

The very best equipment is none too good for a municipal telephone system. There are always some people in every municipality whose voices are a little husky and others a little thin. It needs high-class telephones to transmit and receive these voices with maximum clearness. There are other people whose hearing is a little below normal and who certainly require the easiest-hearing telephones procurable.

Canadian Independent Telephones are noted for their clear talking and easy hearing qualities. They have earned a great reputation for the high-quality service they have given on hundreds of independent municipal systems in Ontario, Eastern and Western Canada. Their records for low maintenance cost have never been surpassed.

These telephones are sold at fair prices. They are strongly guaranteed. And they are made by a company that has always been fighting on the side of the independent systems and against monopoly. The Canadian Independent Company has always been a staunch friend of the independent telephone systems.

If your system is in the market for new telephones, switchboards or construction materials and you want high-class equipment, fair prices and square dealing, then write us.

OUR BULLETINS FREE

No. 5.—Illustrating and describing the Presto-Phone, the Canadian Automatic Telephone for Factory and Private inside systems.

No. 6.—Tells you about and shows you our telephones for rural systems.

No. 7.—Describes and illustrates intercommunicating and other telephones for small inside private systems.

Canadian Independent Telephone Company, Limited

263 Adelaide St. West, - Toronto

Pyrene Fire Extinguishers

Pyrene is the most efficient Fire Extinguisher known, Pyrene puts out any and all kinds of fires, paints, oils, varnishes, gasoline, acetylene, alcohol, wood, fabric, any and every kind of fire.

Chemical Fire Extinguishers

Soda and acid type, holds $2\frac{1}{2}$ gallons and are standard Fire Extinguishers known and recognized everywhere.

Davy Automatic Fire Escapes

In use in 32 countries, hundreds of public and private buildings in Canada. Safe, efficient, economical and sightly. Can be used by old and young, sick and well, and afford a quick and easy method of escape from burning buildings.

May-Oatway Automatic Fire Alarms

Are protecting hundreds of millions of dollars worth of property throughout the British Empire, 17 years in service, and have proven the safest, most economical and most dependable system of Fire Alarms and Fire Protection known.

Full particulars on request.

Ontario May-Oatway Fire Alarms, Limited

26-28 ADELAIDE STREET, WEST, - - - TORONTO, ONT.

Be Wise

Follow the advice given
by the Rulers of our
country:

SAVE

and you will have done
well.

Train yourself in the habit of
THRIFT so essential to your
WELFARE.

The BEST WAY to do this is
to open an account to-day with

**The Montreal City & District
Savings Bank**

*Head Office and Fourteen Branches
in the City of Montreal*

Wilson Carbon Paper Company Limited

333-335 Lagauchetiere St. West

MONTREAL : : CANADA

Manufacturers of

TYPEWRITER CARBON PAPER

PENCIL CARBON PAPER

TYPEWRITER RIBBONS

WAX STENCIL

DUPLICATOR INKS



DOMINION TIRES

"Nobby" Tread

"Chain" Tread

"Plain" Tread

ARE GOOD TIRES

Ask the Man Who Knows

CHARLES A. STONEHAM & COMPANY

(ESTABLISHED 1903)

23 MELINDA ST., TORONTO

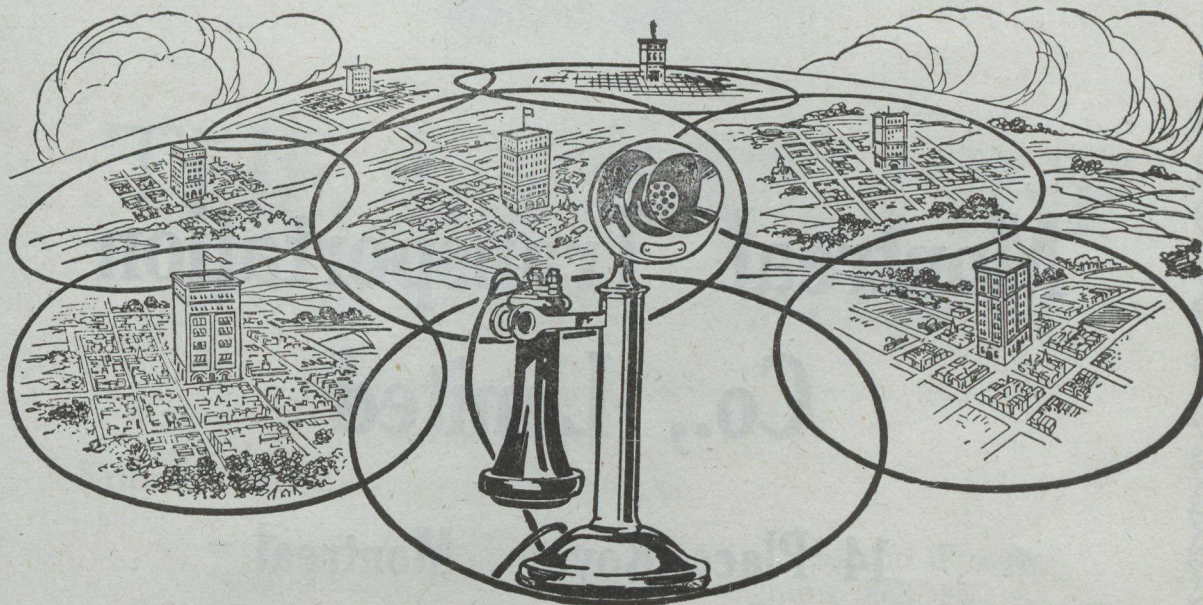
'PHONE MAIN 2580-1

41 BROAD ST., NEW YORK

COBALTS, PORCUPINES, COPPERS,
MOTOR OIL and INDUSTRIAL
STOCKS for cash or on moderate margin.
Our fifteen hundred mile private wire
system reaches all markets. Weekly
market letters free.

BRANCHES: Boston, Philadelphia,
Buffalo, Detroit, Chicago, Mil-
waukee, Providence, Worcester,
Springfield, Hartford.

"NO PROMOTIONS"



An Endless Chain

¶The telephone of every Bell and connecting company subscriber is the centre of the system.

¶The Bell System with lines leading from the subscriber's telephone, like the spokes of a wheel, connects the subscriber to the limits of his requirements whether one or one thousand miles away.

¶More than 9,500 pole miles of long distance line make possible for the

250,000 Bell telephones an endless chain of communication to all points in Canada and United States.


¶Ninety thousand subscribers of 641 Canadian Independent Telephone Companies enjoy the advantages of connection with the Bell Long Distance System.

¶Thus the far-reaching Bell System makes each telephone of the maximum value to its user.

“Every Bell Telephone is a Long Distance Station.”



The Bell Telephone Co., of Canada



Montreal Transportation Co., Limited

14 Place Royale, Montreal



GRAIN

AND

CENERAL FORWARDERS

GREAT LAKES ST- LAWRENCE RIVER
AND GULF

R. M. WOLVIN
President

L. L. HENDERSON
Vice-President

W. CRAWFORD
Secretary-Treasurer

**LYMAN**

THE LYMAN LINE OF MUNICIPAL EQUIPMENT

INCLUDES

Tubular Steel Poles and Brackets

A complete line of plain and ornamental Cast and Wrought Steel Tubular Poles for Electric Lighting and Electric Railways—"Diamond" Tapered Steel Poles of special type for the same purposes—and Pole Brackets and Fittings for the more up-to-date methods of Street Lighting.

Lightning Arresters

that not only effectively protect overhead equipment and station apparatus from damage by lightning, but prevent surges, low voltages and winking lights when the arresters discharge. Every Arrester unconditionally guaranteed for one year.

Chain Hoists, Trolleys and Cranes

for economical handling of material in municipal storehouses and yards. Differential Hoists from $\frac{1}{4}$ to 3 tons capacity. "Cyclone" Chain Hoists from $\frac{1}{2}$ to 40 tons capacity. Geared and Plain Trolleys and hand-power Travelling Cranes.

PROMPT SHIPMENTS FROM STOCK

Lyman Tube and Supply Company, Limited

MONTREAL

TORONTO

WINNIPEG

NEW YORK

DOMINION WAR LOANS

The distributing organization of our Bond Department, together with our Stock Exchange membership, enables us to place at the investors' disposal unexcelled facilities for buying and selling of all Dominion Loans.

*Investment
Bankers*

A. E. AMES & CO.

*Established
1889*

Union Bank Building, 53 King W.

TORONTO, CANADA

TRANSPORTATION BLDG., MONTREAL

74 BROADWAY, NEW YORK, N.Y.

MILTON HERSEY COMPANY LIMITED

INDUSTRIAL CHEMISTS, INSPECTORS, CONSULTING ENGINEERS.

MONTREAL ——— WINNIPEG ——— NEW YORK

To assist you to increase your economies, production and profits, we place at your service our staff of Engineers and Chemists.

Services.

Natural Resource Surveys, Examination of Mineral Properties, Assays of Ores, Development of Processes.

Metallurgical Investigations, Treatment of Ores, Furnace and Foundry Practice.

Investigation of Paint and Paint Materials, Waterproofing Compounds, etc.

Analyses and Tests of all Materials, Foods, Drugs, Oils, Etc.

Bacteriological tests of Water and Milk.

Steel, Asphalt, Tar and Cement Tests.

Designing and Inspection of Paving.

Chemico-legal expert work.

Inspection of Munitions, Foods, Clothing, Steel, Hardware, etc.

DR. MILTON L. HERSEY, President,
Consulting Chemist to Quebec Govt.,

ROBERT JOB, A.B.
Vice-President.

JAS. G. ROSS,
A. A. HOLLAND,
Consulting Mining Engineers

C. E. HAZEN, M. Sc.
Vice-President.
CHARLES A. MULLEN
Director of Paving Department.

Immigration -- Canada

J. E. MARTIN.

Canada's greatest need at the present time is capital and people—particularly capital, for where capital goes, people will follow. Canada has almost unlimited resources, but needs the people and capital to develop them. It is not a matter of developing one province at the expense of another; it is a matter of everybody getting together, talking matters over and coming to a common understanding as to what is best for Canada as a whole. Any work that is done, taking people from one part of Canada to another, has little if any merit, for it means nothing to Canada. The work that means something is bringing capital and people from the outside, and the building up and establishing of credit, which begins with the farmer. It is suggested that a meeting be held, to go over the various matters pertaining to the bringing in of people and capital; that this meeting should be attended by representatives of the Dominion Government, of all the Provincial Governments, manufacturers, farmers, grain growers, bankers, loan companies, railway companies, colonization companies, in fact, all the various interests; that this meeting should be held at some central point (Winnipeg would probably be the most central); that this meeting be called not for a day or two days, but for a week, thus giving the representatives of these various institutions and organizations a chance to visit face to face and together work out the best ways and means of establishing credits and encouraging people and capital to come into the country, and if there are conditions existing which are destroying credit and keeping our people and capital, such conditions should certainly be discussed and remedied. It is not the intention that this meeting shall be affiliated with any political party or with any one class, but rather shall be purely non-partisan and with the one main idea that Canada needs and wants people and capital, and that this meeting is called for the express purpose of getting at the best method of obtaining same.

Legislation.

There has been in recent years, particularly in the Western Provinces, considerable legislation which is beyond a doubt, however well intended, keeping people and capital out of the country. Such penalty taxes as the unearned increment tax, the wild land tax, surtax, hail insurance tax, etc., are not working out—they are not causing people to sell or put their land under cultivation, but on the contrary, are keeping out the very people and capital who would buy this land and put it under cultivation. Where such taxes exist there is always the fear of what might come next, and prospective immigrants and investors simply back away, as anyone will tell you who has been talking Canada during the past few years.

Such legislation does not help to bring in capital and people; the effect is very bad; it is not along business lines and cannot be explained. To get the man with means, you must get him to invest his money first—if you are giving land away and getting the man only, that is a different matter. The man with money invests first, disposes of his property at home and moves afterward. He should have time to do this—he should not be penalized as a "speculator" because he cannot move on the minute he buys. You should be reasonable in these matters. Five men with \$5,000 each come into Canada—one buys a farm, one a stock of merchandise, one a bunch of live stock, one an elevator, and the other puts his money out at interest. Some of these pay no taxes whatever, while the man who bought farm land pays all the regular taxes and in addition, pays a penalty because he bought farm land. Will this help interest people in farm lands? If you want to bring in people who will buy land and farm it you should do away with penalty taxes. Any form of penalty taxes destroys credit and keeps out the right kind of people and capital. Any business man knows that when land reaches a certain price, the interest on its value will make it good business to put that land under cultivation. Land is worth just what it will pay a fair rate of interest on under proper cultivation, and the sooner it reaches that figure the sooner it will be put under cultivation. It would be very poor business policy indeed to attempt to depress land values and destroy credit, and yet these penalty taxes actually do this. A penalty tax in one province hurts the others as well,—it is all Canada.

The Canadian Municipal Journal (published monthly) is a complete review of Civic affairs in Canada at the price of only \$1.00 per year.

Contents

Province of Ontario	200
Province of Nova Scotia	212
Province of New Brunswick	214
Province of Prince Edward Island	218
Province of Quebec	236
Province of Manitoba	244
Province of Saskatchewan	247
Province of Alberta	248
Province of British Columbia	251

SPECIAL ARTICLES:

Canadian Immigration (J. E. Martin)	192a
A Canadian Bureau of Information	192b
Civic Responsibility and Opportunity (Dr. J. M. Harper)	192c
The Rural Community (J. S. Woodsworth)	192d
Education and Employment (Prof. Dale)	193
Lest We Forget	194
Our Propaganda	195
A Great National Highway	196
Lignite and its Utilization	197
The Advisory Council (Dr. Frank Adamas)	198
The Fisheries of Canada (F. W. Wallace)	199
Hydro-Electric Power of Ontario	206
Selling a City to Industries (Dr. W. J. Donald)	207
Self Dependence of Canada (R. O. Wynne Roberts) ..	208
Real Canadian Development (C. J. Yorath)	209
Conditions in Prince Edward Island (Premier Mattieson)	216
Natural Resources and Municipality (H. E. Howe) ..	217
Canadian Road Problem (Charles Mullen)	218
Canada's Opportunity (Editor)	219
Municipal Preparedness and the Chemist (T. Crossley) ..	220
Electoral Reform and Preparedness (H. S. Ross)	221
Proper Inspection and Testing (R. R. Deans)	222
After the War—What? (W. D. Lighthall)	223
Foreign Languages Should be Taught	223
Mental Defectives (J. S. Woodsworth)	224
Nickel	225
Pulp Industry of Canada	233
New Roads and New Industries	234
Magnesium—A New Industry (H. J. Ross)	235
Cement Industry in Canada (J. F. Rhodes)	237
The Paper Mill and the Town (J. N. Stephenson) ..	238
Labour Bureaus	239
Copper	239
Responsibility of Municipalities (H. Bragg)	240
Our Immigrants	241
Rural Credit Societies	246
Developing Canada's Resources	254
The Great Industry of Scotia	256

ANY ARTICLE APPEARING IN THESE PAGES MAY BE REPRODUCED PROVIDED FULL CREDIT IS GIVEN TO THIS PUBLICATION.



A Canadian Bureau of Information

At a recent meeting held in the University Club, Montreal, at which were present representatives from all the principal national organizations of Canada in the invitation of the Industrial and Educational Press, a new movement was inaugurated under the general title of the **Canadian Bureau of Information**. The potentialities of such a bureau are epitomized in the resolutions following this article, which were passed unanimously.

The organizing genius of the movement is Mr. J. J. Harpell, the President of the Industrial and Educational Press, who conceived the idea of centralized bureaus of information in the larger industrial centres of the Dominion with branches in the smaller towns, after a visit to the Municipal Commercial Museum of Philadelphia. This museum is doing invaluable work in collecting statistics and information of industrial and commercial enterprises—both local and foreign—and specimens of the resources of the country with their application to commercial uses, and disseminating the same in the form of exhibitions, illustrated lectures, and answers to private enquiries, etc. A branch of the museum takes up educational work in the schools of the city of Philadelphia and the State of Pennsylvania by the loaning of colored slides with typewritten lectures to the teachers and the placing of collections in the schools showing the processes of manufacture from the raw material to the finished article. The Philadelphia museum also conducts a free reference library of commerce in which is contained up-to-date industrial and commercial knowledge from all parts of the world.

Such in brief is the outline of a great work on which is based the Canadian Bureau of Information, and while Mr. Harpell relies largely on the educational value of the propaganda for its success he does not overlook its practical value to manufacturers and agriculturists and their employees. One phase of the movement is of particular interest to the municipal councils of Canada, namely the suggestion that the city or town hall be used for the housing of the local reference library. This idea will meet with the approbation and help of every live council, if only as a means of placing in concrete form before those seeking information all the reliable data and opportunities of the community. A better or more practical municipal advertisement could not be conceived and we would strongly commend that serious consideration be given to the memorandum on the subject which we understand will shortly be mailed to each municipal council.

Mr. Harpell, in his scheme, has got at the very root of national material progress—he realizes that the day is fast approaching when every industry, every municipality and every nation must stand the acid test of efficiency; when every workman must have sufficient technical knowledge to understand more intelligently the product he is handling. Mr. Harpell assumes, and we believe rightly so, that every man has at least sufficient mental capacity to grasp the larger significance of labor if given the opportunity. Such a speeding up of the human resources is bound to have its effect directly on the farm, the factory and the commercial house, and indirectly on the community and the nation. The potentialities of the Canadian Bureau of Information are tremendous, if each enthusiast will but do his share in building up his own local centre. What the Philadelphia museum has done, and is doing for the State of Pennsylvania there is no reason why the bureau just inaugurated should not do for the whole of Canada.

Resolution Adopted by Those Present at the Meeting.

WHEREAS there is need in Canada for some movement calculated to give greater effectiveness to the facilities already provided, and to be provided, by the various government and municipal authorities for the collection and dissemination of industrial and commercial information, and for the promotion of technical education,

AND WHEREAS in the opinion of those present such a movement might arise from a co-ordinate effort on the part of existing technical, trade and professional organizations.

BE IT THEREFORE RESOLVED, that we here present, together with such others as may wish to join us, form ourselves into an organization to be known as the

"CANADIAN BUREAU OF INFORMATION."

The objects of this organization to be as follows:

First: To provide a central Bureau of Information which may eventually be equipped with a library, files and a staff capable of supplying information and advice

concerning industrial and commercial matters, particularly those that have to do with domestic production and the domestic and foreign trade of Canada.

Second: To encourage, and where possible, provide material for the strengthening of the public libraries, and the libraries of secondary schools, with literature calculated to give their readers an up-to-date and reliable account of the industries, commerce, finances and resources of Canada, as well as a knowledge of the opportunities these sphere offer, and the preparation necessary to take full advantage of them.

Third: To encourage and assist in the establishment of museums for the exhibition of Canadian products and those of other countries that might be produced in Canada, as well as the products of other countries which are necessary to the industry and commerce of Canada.

Fourth: To provide, in so far as possible and encourage the production of photographs, plates and other reproductions of scenes pertaining to Canadian industries and resources for use in schools and for public lectures.

Fifth: To assist in the establishment of trade and technical schools, as well as to encourage the people to take fuller advantage of such facilities for education and training.

The "Canadian Bureau of Information" is under the control of a Board of Directors, composed of ten Directors, together with the Presidents of the National Societies of Canada acting ex-officio.

INVEST IN YOUR OWN COUNTRY.

In the press we read from time to time of large syndicates of British and foreign capitalists that are about to start industries in different parts of this Dominion. This is naturally good news to those fortunate municipalities where these industries will be located, and indeed the whole of Canada will benefit. So we welcome the new industries, come the capital from where it will (provided it is not German) even though it means the profits going out of the country. But surely there is a lesson to Canada in all this foreign capital coming into the country and the profits going out. We see that Canada must be a wonderful and safe country for investment to these outsiders who have only one object — profit. They evidently have confidence in the government—Federal, Provincial or Municipal—for no man invests to-day in a foreign country unless he is fairly sure of the government. Mexico and other South American states have taught them a sharp lesson. The great lesson, then, to be derived by the Canadian investor is to follow suit and invest in Canadian securities. In this the United States has set us a good example. The American capitalist has not only confidence in his own country, but he backs up that confidence with his money—and usually wins. And it has been well for Canada that within the last decade the Americans have a surfeit of profits to invest elsewhere, and that that elsewhere should be this Dominion. But not until they had that surfeit did the Americans look beyond their own country, so why should not the Canadian capitalists back up their patriotism by Canadian investments.

It is true that Canada has lacked native capital in the past, but it is not so to-day. Canada never had so much money in the banks, much of it made from profits from munitions. These profits were big and sure, and if the makers of munitions are really as patriotic as they claim they won't forget their responsibility to their community and their country.

Civic Responsibility and Civic Opportunity

DR. J. M. HARPER, Quebec.

Preparation to Meet After War Conditions.

In dealing with the problems immediately connected with the homelands or Overseas Dominions of the Empire, we Canadians naturally turn with special interest to our homeland. It is marvellous how we people of the second largest country in the world, have so long been prone to the folly of a come-as-it-may in the building-up and unifying of our national characteristics. How proud we are over the prospect of Canada growing bigger and bigger in point of population and wealthier and wealthier from the products of our farms and forests and mines and factories. For years we have been advertising our country as a haven for the immigrant who is eager to establish a home for himself and family; and to-day we cannot utter too proud a word about our soldier-emigrants just as eager to make a name for themselves and the Empire at large in the military camps and battlefield trenches of Europe. And these soldier-emigrants of ours, it has to be said, have gone to their task, with the welfare of Canada as well as of the whole Empire in their eye; whereas the average immigrant coming to us after the war, like too many of those who came to us before the war, may fail to find in Canada, even up to the day of his death, anything else to be proud of, beyond his immediate family connections, his farm effects, and a patron or two who have never taken advantage of him in their dealings with him. And even now we would bait our invitation to our prospective immigrants in the years to come by ringing in their ears the wonderful story of the growth of Montreal and others of our larger cities, as if these populous centres form a more comfortable haven for them than the farmlands beyond.

The Returned Soldier.

The soldier-emigrant is, God willing, coming back to us in the near future; and considering the sympathy we are extending to his disabled brothers, no one is likely to object to the suggestion made by the editor of The Canadian Municipal Journal that he be given a civic reception on his return to his home-town. And may we not learn from his return and of those who may come with him and after him, that there is more in a tide of immigration and than a mere dollar-and-cent gain, more than a mere doubling or trebling of our country population?

In other words, we would have the immigrants, coming with our soldier lads and after them, taking kindly to the Canadian esprit de corps, which these same active battlefield patriots of ours have lately been inoculating us all with. We would have them become Canadians at the earliest moment possible. As the Journal says, the task of giving the returning soldier as well as our future immigrants a regenerating welcome rests as a responsibility on all of our governing bodies—federal, provincial, and municipal. These bodies have for the most part been abusing themselves in the past over the commercial exploitation of this Canada of ours, as a land overflowing "with milk and honey," giving too little heed, as many of us thing, to the ethical side of events that make for a permanent nationhood. The building of railways, and the deepening of waterways and all the many movements that have for their hobby, the providing of the country with the biggest cities possible, which, as a contrast to country life, become too often the havens of municipal tergiversation and moral obliquity and "slum's" depravity. The overgrown town may not in itself be a hindrance to the maturing of a right kind of Canadianism. But other means of maturing a Canadianism ought not to be neglected. The country municipality has to be encouraged in its looking after the comfort and progress of our rural populations, to a proportionate extent with the needs of our large cities. Ethical developments are not confined to the greater ups-and-downs of commercialism in city life, or to its social gradings either. Our so-called soldier-emigrants are beginning to come back, God bless them; and, disabled for life though many of them are, they are already illustrating for us all, better than volumes of didactic talk may, what is meant by love of country, deep down as stable something-or-other in our would-be Canadian souls.

Ways and Means.

The Editor has enumerated in his article on Canada's Prospective Preparedness the ways and means to be held in hand for making the most of a post-war prosperity. Expectancy is awakened. The prospects are being discussed, more or less enthusiastically by every newspaper

in the land. We all keep thinking of the great flood of immigration there is going to be, and many of us are never done with theorizing as to what steps should be taken by our civic agencies to inaugurate a blending process between the old and the newer populations. I have often said that were a National School possible in Canada, as it has been in the United States, the perennial immigration that cannot but come our way might be made to provide a steady increase of staunch Canadians, assimilating with the rest of us, after the passing of a single generation at least. But we have not a National School; and, short of civil war, we are never likely to have one, however near our provincial systems of school administration come to help us out with a patriotic training for our young folks. Nor is there any mere fault-finding in one saying that several of our institutions for the ethical uplift of our communities might do more than they are doing to get us to understand one another. Some of these institutions seem to have become for the most part individualized — with the general well-being of the community given rather a secondary place in their undertakings.

The Conversion Spirit.

It is not for any intelligent Canadian to belittle the effects on our civilization of the commercial spirit. I have said again and again that the commercial spirit is more of an influence in the world to-day than all our other ethical forces put together.

Every community in Canada, from the country parish to the overflowing city, has its task to perform for itself and Canada at large, under the conditions of our present prosperity and of the prosperity the future has in store for us, when once the Kaiser has been brought to his knees by his own people and the peoples of the whole earth, who would rescue the Christian civilization from his clutches. There is a civic responsibility that ever calls for a prudent and purposeful looking forward to what is going to happen in any federacy of communities, inclusive of all civic organizations from the village to the biggest of our cities. And Canada has to seize time by the forelock, if she would not miss the opportunities that are awaiting the men women and children of its various constituencies. And here we can only look at one neglected principle to have it respected more in the future than it has been in the past. We have to see that our natural resources become our national resources as well. War is a time of waste. But when once the war is at an end, we have to provide against waste in our several commercial undertakings. The raw products of our forests and mines and even our vast prairie lands have to be prepared for an inner market in a finished state more than for an outer market in a semi-finished state. This is the first of our civic responsibilities. And in order to meet that responsibility, with all marketable success, our municipalities have to make it easy for the capitalist to turn into marketable ware what is being sent out of the country as more or less of a raw material. For instance, our pulpwood the capitalist has to turn into paper for us, and our surplus of pulpwood must also be turned into paper before it can be exported to other lands. In the same way the output of our mines ought not to be exported unless in the form of marketable metals for manufacturing purposes. And even the harvests of our prairie wheat lands should be turned into flour for the most part, before being shipped to our countries. The civic responsibility of thus incubating opportunities on our own account, when once the capitalist has made himself one of ourselves, is therefore on every one of our municipalities. Their mission is to get the capitalist to do for the community what the community would do for him, commercially and even ethically. Nor does it matter very much from what end of the earth the capitalist be induced to come to us, as long as the skilled artisans he employs be Canadians or possible Canadians. Indeed the capitalist, if he be not too much of a non-Canadian, can readily utilize the legend "Made in Canada" as a means of enhancing, in the hearing of all incoming immigrants, what that other legend "Canada First" stands for in its widest connotation under the prestige of the British Empire. Such is, in limited phrase, the mission the Municipal Journal proposes to take up in detail, to be helped out and amplified as it no doubt will be by its contemporaries, who are as eager to see Canada become a nation in more than name, and in legitimate line with a sound morality and the commercialism that protects its own probity.

The Rural Community---Its Work and Workers

By J. S. WOODSWORTH,

Director, Bureau of Social Research, of the Three Provinces of Manitoba, Saskatchewan and Alberta

CONTROL AT PRESENT		SUGGESTED CONTROL
Municipalities and School Districts		Community Unit—town and tributary district.
Reeve and Councillors Secretary-Treasurer Assessor Auditor Road "Boss" Weed Inspector Census Enumerator Agricultural Secretary	BUSINESS	A Community Council—working through unpaid boards. Business manager, clerical work, Secretary-Treasurer, Assessor, up-to-date census of people. Bureau of Information and Agricultural expert, to assist farmers and teachers.
Several sets trustees Secretary-Treasurers School teachers	EDUCATION	School Board—in charge of all schools. Teachers.
Private Doctors District nurse	PUBLIC HEALTH.	Local Health Board. Municipal Hospital, Doctor and Nurse.
Half-a-dozen churches Ministers—Officials Societies, etc	RELIGION	Social Welfare Board. Social Secretary, to assist in organizing Religious and Social Life.
Unorganized	PHILANTHROPY	Various denominations could supply service in rotation.
Unorganized	RECREATION	
Unorganized	SOCIAL LIFE	

The above outline may help to bring before us the organization of the rural community—as it is and as it might be. A good deal has been written about the re-organization of our city government; very little about the re-organization of the business affairs of our rural districts.

In the West, municipalities are usually organized on the checker-board system. In Saskatchewan nine townships constitute a municipality. The little villages have separate municipal organization—thus very largely separating "town" and "country" the interests of which are really identical. Within each municipality are a number of little schools districts each with its own officials and machinery.

It would seem quite possible that a new municipal unit consisting of the town and the tributary district and having charge of all community arrangements within that territory might be more satisfactory than the present arrangement. This would make it possible to unify the community life, to concentrate the business in the hands of a few competent officials and to provide for community needs that are as yet unmet.

Various movements look in this direction. The consolidated school movement seems to be moving toward the establishment of Municipal School Boards. In Manitoba, the municipalities appoint a Committee to administer the Mothers' Allowance Act. In Saskatchewan, municipalities are taking up the question of hospitals, rest rooms, hotel accommodation, etc. In Alberta, at least two cities are attempting to organize their Boards of Trade so that the interests of both city and country will be represented.

As things are at present, many Councils confine their work largely to building roads and bridges; many school boards to teaching the three "Rs" and a few extras to a group of children. Now there are numerous community problems outside roads and bridges and the three Rs. At present these are left largely to private institutions and must be financed largely by voluntary contributions—but why! Surely provision for public health and recreation, for example, are as much public obligations in the country as in the city. As a matter of fact, they can be provided for on an adequate scale only as the whole community accepts the responsibility.

Social opportunities are not now definitely provided for by the community. The school buildings are usually closed after four o'clock. There is rarely a municipal hall in which to hold any gathering and no representative group to take the lead. Hence often the dearth of that social life which makes country life worth while and lacking

which the young people flock to the city. What social life there is, usually centres in the little village or town in the management of whose affairs the country people have no voice or no responsibility. The villagers feel no special need, for example, of a rest room for the women and they cannot see why they should tax themselves to furnish one. The country people, on the other hand, are accustomed to take what accommodation is provided for them. So the rest room comes only where there happens to be a group of people with initiative and community spirit and organizing ability.

When the Councils broaden out their activities they will occupy a more prominent position in the estimation of the people generally than they do at present.

Farmers, perhaps even more than members of other classes, have been slow to realize their social obligations. They were accustomed to an independent life, trained in independent traditions, nourished on an independent theology, so little wonder if some of them came to think that the whole duty of man was summed up in being a good father and a good neighbor. Little credit was given to the man who, at the sacrifice of his own personal interests, gave time and thought to municipal affairs.

But within the last few years there has come a great change. The farmers realize more clearly than most classes the broader social relationships which demand co-operative enterprise. The more progressive farmers have thrown themselves into the organization of Grain Growers Associations and Co-operative Societies. They are studying the tariff, rural credits, freight rates, marketing and similar questions. Under these circumstances, local needs and problems have sometimes been overlooked and the men who gave thought to them have often received little but adverse criticism.

In the second column I have ventured to suggest for purposes of discussion an ideal scheme for carrying on the business of the community. This attempts to combine efficient paid service with interested voluntary co-operation. How far this scheme is immediately practicable or by what steps it might best be attained I leave to men who have had practical experience in rural municipal affairs.

One thing, however, is certain. After the war, the functions of our Councils must be determined not by what they have done in the past, but by the new needs that insistently demand attention. In the past we have chosen "careful" men; in the future we shall look for men who are big enough to tackle a difficult job.

Education and Employment

PROFESSOR J. A. DALE, McGill University.

The enquiry into the technical and industrial education of a country naturally focuses itself on the connecting points between the school system which trains the majority of the children and the after life with which they pass. For the establishment of any work in higher education reveals immediately the true state of previous preparation in the students, and drives the enquiry back to the school system. What is the connection between the school and the after life of its pupils? This question goes straight to the heart of the matter and demands solution of some of the profoundest problems not only of education, but of the national life.

The national school systems have been of rapid growth—they came as a result of the industrial revolution. Modern democracy and modern industry required the support of an educated people. But the systems have developed during a transitional stage of society, and grew to some fixity before there was any clear realization either of the need to be met by education, or the means of meeting it. The curriculum was either traditional or empirical; often it did not even profess to fit for the actual careers of its children, and was slow to learn the tests of a successful education. The change from this official, doctrinaire view is going on before us at the present moment. All the most vital movements in education concentrate upon this point; how to arrange the school course so that it passes naturally and with the least possible waste into the industrial life. For it is the misfit between school and life which has too often made school a preparation for unsettled labour and unemployment.

In its main features the case is the same in all industrial communities which have developed a system of universal education. In nearly all such places education is compulsory, 14 being the usual age. Yet it is found that children leave school too early either to have mastered the subjects of the school course or to be ready to take up at once such reasonable preparation as is needed for skilled labour. They leave just as they are attaining the capacity to profit by the school work, and before the industrial organization (especially since the disappearance of apprenticeship), has for them a worthy and profitable place. The consequent shortage of skilled labour is known to every employer of good labour; the moral harvest of the shiftless years is the despair of every reformer, and one of the heaviest burdens of the modern state. The economic argument for the employment of children has already broken down so far as the employer is concerned; the contention that certain very necessary industries (e.g., cotton), can only be conducted with profit by child labour is very rarely heard to-day. The difficulty of the poor harvest is much more serious, and its roots lie deep; the problem is more than educational, but surely not beyond the reach of constructive statesmanship.

As with the flaws, so with the remedies; they are much the same in all countries. I will deal briefly with the following:—

(Professor Dale here deals with Compulsory Education, Evening Classes, Different Types of Classes and Supply of Teachers, which our limited space prohibits us from publishing, but which we will be pleased to send on to anyone interested in this important subject.)

5. **The school curriculum.** It is clear that the problem of industrial education involves not only the consideration of adding to the scheme of elementary education, but a re-examination of that scheme itself. The subjects of the curriculum and the methods of teaching them, are undergoing searching scrutiny from a different point of view. The dominant lines of change are in directions which will greatly strengthen the schools, not only educationally, but in their function of preparation for industrial efficiency. Of these I can only speak in general terms. Such are:

(a) The value set upon the training of sense discrimination and motor adjustments. The real meaning of the manual training movement, and its different phases in different grades, is beginning to be interpreted scientifically; and the industrial is seen to be only one of its values, but it is a real one. A secondary value is that it provides a wider field for individual capacities to reveal themselves, and thus enables education to perform more fully its great selective function.

(b) The value set upon physical fitness. Schemes of exercise (both formal gymnastics and organized games), based upon thorough knowledge of the growing body, are coming to be a part of every well conceived educational system. The same is coming true of medical inspection and other agencies for the physical welfare of school children, culminating in school clinics. Physical education is a valuable aid in the mastery which it cultivates of various bodily co-ordinations; apart from its value in making the care of health a habit.

(c) The value set upon intelligence and goodwill as more important results of schooling than information. This is illustrated by the attempts that are being made to restate all the subjects of the curriculum. However differing in different subjects these new methods have certain common characteristics.

I. They attach as closely as possible to actual experience of the things taught, either by analysing some features of every day life, or by leading up to their explanation, or by the construction of experiments.

II. They offer the utmost possible scope for individual practice and self expression.

III. They lay great stress on the process by which results are attained. They arrange their material in an order which is at once suited to the experience and powers of a growing mind, and is itself logically coherent. The object is thus, not to record results to be memorized, but to set up mental habits. The moral, social, educational and industrial bearings of the whole movement need no emphasis here. It is clear that the changes in elementary education are such as will make an increasingly fruitful preparation not only for general culture and effectiveness, but also for definite industrial and technical training.

6. **Employment is a problem largely of education, and the gap between school and industry must be covered from both ends.** There is a very interesting instance of this co-operation in England. The Labor Exchange Act of 1909 gave the Board of Trade power to establish Advisory Committees, consisting of representatives of employers and employees of the district, together with persons of special experience (as teachers, social workers, etc.), "to give advice with regard to the management of any Labor Exchange in relation to juvenile applicants" and "to take steps to assist boys of parents in the choice of employment." This policy was carried still further by the Choice of Employment Act of 1910, which gives power to establish special branches of the Labor Bureaus to deal with this problem, in co-operation with the local educational authorities. Committees have been established under this system which keep in the fullest touch both with the supply and the demand. For example, in Birmingham, with its thirteen thousand children leaving the elementary schools every year, nearly two thousand volunteer workers are engaged, in close association with the teachers and the Juvenile Labor Bureau. They are thus able to know each individual case and the advantages and disadvantages of each employment, together with the kind of qualifications needed for success in it. Employers have made a practice of seeking help through these committees.

A system in which the industrial and educational sides are thoroughly articulated in the latter school years will have special advantages in finding the right employment for its pupils. Even without this, enough has been done to show the possibility of reducing the number of lamentable misfits between the education which is supposed to prepare for the life, and the life which actually succeeds it.

"The great wealth of natural resources, mines, fisheries, immense agricultural possibilities, will bring and hold the countless immigrants looking for new fields of enterprise after the Declaration of Peace, and when the war clouds have finally rolled away development should be so rapid as to justify strong anticipatory measures."—Lt.-Governor of Alberta.

With determination among nations to fight for trade supremacy, no country dare, even though physically exhausted, lie on its back for a breathing spell. The world will be up and doing, and Canada will be in the thick of the industrial fight with both feet. One foot already has secured a firm hold on foreign business. — Financial Times.

Canadian Preparedness

A PREPAREDNESS PROPAGANDA OF THE MUNICIPALITIES AND CIVIC INDUSTRIAL DEVELOPMENT OF THE PROVINCES OF CANADA. (Copyrighted).

FREDERICK WRIGHT, Editor.

Published by the CANADIAN MUNICIPAL JOURNAL under the auspices of the UNION OF CANADIAN MUNICIPALITIES.

PRICE 50 CENTS

Lest We Forget

When war broke out the industrial conditions of this country became so bad that throughout the winter of 1914-15, and right up to Canada receiving her munition orders from the Imperial Government, the unemployed army of Canada was the biggest in its history; so much so that it became a national danger. In the West in particular the city halls were besieged by men and women clamoring for work to enable them to keep from starving, and the Mayors were compelled to go to Ottawa to bring home to the Federal Government the seriousness of the situation.

At that time of stress the citizens looked to the local authorities to solve the problem of unemployment.

Happily the big orders for munitions saved the situation which was about as distressing to thousands of Canadian families as it is possible to conceive.

But the munition industry is only a temporary industry, which will cease when the war is over. **What then?**

The answer is obvious unless preparation is made right now to meet the situation that will be more serious when peace does come than at the beginning of the war, for the particular reason that added to the army of out-of-works there will be over 300,000 returned soldiers. **The citizens will again look to the local authorities to provide them with work.**

Hence our **propaganda** which is the outcome of the convention of the Union of Canadian Municipalities, held last year in Montreal.

Having given our reasons for entering into the field of preparedness we will state briefly the propaganda itself.

The propaganda is a serious attempt to place into the hands of the Municipal Councils, Boards of Trade, etc., the machinery by which they can best develop their local industries.

The development of her natural resources is the best safeguard of Canada to meet the world-wide economic pressure that will be a consequence of this war, and the work of the propaganda was initiated

to find out how these resources can be best utilized for the people. With that idea in view we have divided the whole of Canada into zones—or districts—in which the mineral, timber, fish and agricultural resources of each is shown—how they can be best developed for the benefit of the district in particular and the country as a whole.

We have not attempted to publish the mass of detailed information that was gathered in the course of the investigations, only just sufficient in each case to illustrate very broadly the wonderful opportunities lying right at the door of every municipality, be it rural or urban. In addition some special examples are given of the enormous sums of money lost to Canada each year in those industries essentially indigenous to the country, with the hope that in the creation of new factories this money will be saved to Canadian work-people and those who are optimistic enough to invest the necessary capital.

Of course there are other factors to be taken into consideration—transportation, markets, etc.—in the material development of a district, and these are placed in the order of their importance before the Municipalities. And here we might say that in the preparation of the propaganda we received the practical support of the best men in Canada on their special subjects, and that practically the whole of the statistical departments of the governments were not only placed at our disposal, but the heads themselves have taken a keen and practical interest in the work.

How far successful the propaganda will be in the development of material Canada is hard to say, but of one thing we are very certain, and that is the municipal councils are keenly sensible of their responsibility in the well being of the people of their respective communities and any concrete plan such as this that will help them to eliminate unemployment will be welcomed. The results of the propaganda which are given in the following pages will at least, we hope, give the municipalities of Canada a line on the opportunities at their door.

Our Propaganda

In presenting this preparedness number we ask for the forbearance of our readers for any mistakes found within its pages. In attempting to give a survey of this great Dominion in less than 100 pages, so as to be easily understood by the average man shortcomings are inevitable. The main idea of the work is to give a broad perspective of the commercial resources, so that more intelligent preparation might be made to help Canada take her proper place in the coterie of nations that make up the British Empire.

In the following pages are set down briefly the natural resources of each zone, their present development and the opportunities for their further development; the present industries, the number of people employed and their wages and salaries; the amount of capital in use and the gross profits, which for the whole of Canada make a showing of 20 per cent. (not counting the profits on munitions which at this time and for the purpose of the work would not be politic to show), which should be sufficient evidence that manufacturing in Canada is profitable, particularly where the raw or basic materials are indigenous to the districts in which the plants

are located.

So that the most may be made of the propaganda we would suggest to any municipal council or individual who would know more of their particular district or zone that they write us for the details that we have collected, but have not the space to publish, or to any council desiring a complete industrial survey of their district we would commend the offer made on another page. A number of valuable articles have necessarily been held over for the Canadian Municipal Journal which will carry on the propaganda so well started.

Before closing this introduction we would take advantage of thanking all those who have helped to make the propaganda possible—our contributors, every one of whom has given his services gratis and our advertisers whose used space does not nearly represent the monetary value of their contributions; the governmental departments of the Dominion and Provinces; our own staff who have on a propaganda new to their ordinary work given ungrudgingly of their time; and last but not least, our printers, who have helped in every way to make the work a success.

Canada's Economic Independence

If this war has taught us anything it is in the great value of economic independence as far as possible in the basic necessities of life. Germany, in spite of the limitations of her natural resources and the stoppage of her supplies by the blockade of the Allies has been able to hold out as long as she has done because of her vast scientific knowledge that has enabled her to utilize so many wastes—or what would be wastes in most countries—and actually turn them into food and clothing. Great Britain from being the largest importing country in the world, of both raw materials and foodstuffs, has become almost a self-supporting country, particularly in foodstuffs and thus spoiled Germany's dream of starving her by a submarine blockade into accepting impossible peace terms. Such a thing, previous to the war, would not have been thought possible. We in Canada have had no submarine menace nor blockade to bring us to time on the vital question of self-support, but the fact nevertheless is that this country, with all its vast and varied material resources, is far from being self-supporting and economically independent. We export our raw materials and import manufactured articles made from these same raw materials though Canada has all the facilities to manufacture at home. We import coal in large quantities when we have the second largest coal deposits in the world, and in our natural waterways the cheapest transportation facilities from east to west. Our western farmers specialize on wheat and go to the cities for their butter, eggs, potatoes, etc., much of which have been imported. They even buy their flour, manufactured from their own wheat, but which in the process has increased to such value, or rather prices, as to make them quite envious. In other words, Canada is largely the country of the exploiter, and that exploiter may be in this country or across the line, but wherever he is he would have the avenues of trade run north and south, with the raw material going south and the finished article coming north.

We cannot say then that Canada is self-supporting. As showing what this dependence on other countries for so many of our supplies means we might take the case of nickel, a mineral indigeneous to this country, but which is all exported in practically its raw state to the United States, where it is refined, at a tremendous profit, leaving a loss to Canada during the last ten years of over one hundred million dollars in profits alone, or more by twenty millions than the nickel matte brought the Canadian exporter.

Some time ago it was urged that an embargo be placed on nickel by the Federal Government. Supposing such a suggestion had been put into force what might have been the consequence? The United States government could have immediately placed an embargo on anthracite coal and thus starve out Ontario and Quebec.

Where is Canada's economic independence?

She has none and cannot have economic independence until she is self-supporting and she can only be self-supporting when she grows, mines and manufactures all that she requires in the necessities of life.

We believe that this war will bring the United States and Canada closer together, politically and economically. There is every reason why the two countries should work together for the common good of both, and one of the first lessons that the United States could teach us would be to work out our own economic independence, as they have across the line. The United States is absolutely independent of the world for everything that makes life worth living, and no blockade could starve her out. In such an extreme case she would actually go on developing. She is self-supporting. Canada's material resources are equally as abundant and as varied, and her human material equally resourceful as that of the United States, if given the incentive and opportunity, and that incentive and opportunity can be given in one word—preparedness.

A Great National Movement of Peace

FREDERICK WRIGHT, Editor Canadian Municipal Journal.

This present war has made the people of Canada realize, as they have never before, the great distances of their own great country. In the transportation of our soldiers from the West to the East, before their crossing of the Atlantic to the seat of war the imagination has been fired of those of us who have been left behind to know something more of those hinter lands which could produce such splendid specimens of manhood as those we see in our Eastern railway yards and at the posts of embarkation. Our imagination goes beyond the railroad, but alas, we cannot get there for we have no roads to take us; we cannot get into personal touch with our far distance neighbours and kin, or they with us of the East. It is true that the great transcontinental railways have lessened the distances—from a fortnight to a day—and the telegraph and the telephone have annihilated distance altogether, thus making these great inventions real factors in welding a nation together. Yet good roads have always been and must remain the true arteries by which the people traverse the country. To take to the road means something more than walking or riding so many miles; it means the feeling of independence inborn in each one of us. Probably there are no more efficient means of keeping the people on the land than good roads; certainly that country is best off that has plenty of permanent highways as illustrated in the contented spirit of the people. As a local investment too good roads have always paid in bringing outlying districts nearer to the railroads and to each other, and why not a national highway invested in by the nation.

A NATIONAL HIGHWAY.

In our March issue (1916) we urged the building of a NATIONAL HIGHWAY across Canada to serve as a great peace monument and a practical demonstration of our gratefulness to those who had sacrificed their lives for us on the fields of Flanders. At that time we might have been a little too previous, though we were not the first by many years to suggest a national highway, but public thought like events moves rapidly these days and in again taking up the subject with the idea of bringing it to a logical conclusion we have with us a number of the national and provincial unions and associations, including the Union of Canadian Municipalities and the Dominion Good Roads Association. These societies through their conventions have done much in bringing home to the citizens of Canada the value of permanent roads, particularly to the farmers, as a means of business and social intercourse, and also as impetus to a large and profitable tourist traffic. The provincial governments, realizing the wishes of the people, have spent millions of dollars during the last decade on the roads, and not one government has lost a vote because of the outlay.

In many of the urban municipalities are to be seen miles and miles of streets equal to any on this con-

continent, and they have been the gainers in more contented populations and in increased values of surrounding properties. Indeed all the urban centres, during the last five years, have had sufficient pride in their thoroughfares to make them worth while, though they have a long way to go yet before perfection is reached. And since the provincial governments have encouraged the rural municipalities, by paying a large part of the cost, great improvements have been made throughout Canada in local highways. All of which means that the Dominion is well served by many networks of local, county and provincial thoroughfares, but as yet there is no connecting link between the different systems so that for economic reasons alone a trunk road is very necessary.

This great trunk road should be built from the Atlantic to the Pacific.

Such a highway would be a great work, worthy of Canada, worthy of her splendid army sent across the seas and worthy of her sons and daughters who have made the supreme sacrifice. So that it would indeed and in fact be a monument to those who will have made it possible for us to have that which we term liberty, the whole of the road should be built by returned soldiers under military discipline—but with civilian pay. At the end of the long Peninsular and Napoleonic wars the British army, instead of being disbanded and so thrust on an already impoverished country, was utilized in building many of England's famous roads. By the time the roads were complete national and local conditions had become normal and the country better fitted to assimilate the soldiers to civilian life; and the same procedure should take place in Canada.

We would even suggest that such a transcontinental road should take the place of the many monuments of stone that have already been mooted, which while excellent as showing a sense of gratitude, are not serviceable and too often are monstrosities and eyesores. Instead then of such memorials mile stones could be placed along the great national road with proper memorial tablets so that those who pass along on its surface in the future will know that the people of Canada in the twentieth century knew how to honour their brave dead.

Such a national highway must be built strong enough to last, with proper maintenance, for all time. That is, it must be what is termed a permanent road, built of Canadian material. It must be permanent enough to be almost fool proof and under sharp inspection invincible to the machinations of the "grafter".

To take the control out of party politics a permanent commission of twelve men should be appointed as under: three selected by the Federal Government, two of whom should be engineers, and one each selected by the Provincial Governments, preferably the deputy minister of roads, as in Ontario and Quebec, and the commissioner of highways in the other provinces. And this commission should have the selection of the route.

This brings up the question of cost and the problem of raising of the money. To build sufficient length of new roadway and to repair old roadways so as to have a continuous highway of eighteen or twenty feet between Vancouver and Halifax, and including Vancouver Island, will take about 3,500 miles of new road, or its equal, and the cost would be about \$20,000 a mile, or \$70,000,000. Such a huge sum would be unthinkable three years ago but the Canadian people have shown since then what they can do in raising money when given the incentive, and such an incentive is now before us in this great coast to coast highway. How the money should be raised might be along the following lines:

Half of the sum required (\$35,000,000) by the Federal government, by a bond issue.

This would mean that every citizen in Canada would have a share in the road.

Quarter of the sum required (\$17,500,000) by the Provincial governments and those municipalities through which the road would run, in proportion to the mileage and cost, as per the decision of the Commission.

As a great trunk road will give direct benefit to those municipalities along the route which it would run they should be more than eager to share in the extra tax.

Balance of the sum (\$17,500,000) to be raised by public subscriptions.

This is a large sum to raise by public subscriptions but given the right kind of publicity the appeal would be more than met. The Patriotic and Red Cross Funds have set the example in appealing to the public.

We have tried in the above to place in concrete form our reading of the minds of those who believe that such a national highway should be built.

That the idea is in the minds of the West is illustrated in the circulars that have from time to time been sent out by the Island Automobile Association of British Columbia and these appeals have borne fruit in the many favourable answers received by the secretary from all kinds of citizens, including farmers. There is no doubt that that a NATIONAL HIGHWAY is not only feasible but desirable as a practical demonstration of Canada's determination to progress along rational and utilitarian lines. But Canada must prepare right now if she is to literally put on the map of this continent one of the new seven wonders of the world. We don't know of any conception bigger or better or more worthy to commemorate our part in the world wide struggle for the freedom of the nations than that of such a highway, and if those who have given and will give up their lives in the good fight could but speak it would be in one refrain DO YOU THIS IN REMEMBRANCE OF US.

A new Canadian Industry. -- Lignite and its Utilization

Canada has the second largest coal deposits in the world and yet she has to depend on another country—the United States—for her principal coal supplies, whether it be for commercial or domestic use. Even these supplies may be shut off by an embargo, for it is estimated that fully two-thirds of the known anthracite deposits in the United States have already been used up and it is natural that the American people should want to conserve the balance or at least use it themselves. Such an embargo under present conditions would affect Canada to such an extent that literal starvation would soon prevail in parts of this Dominion, notably the Provinces of Ontario and Quebec which depend almost wholly on anthracite coal for heating purposes, all of which is imported from the United States. Last year we imported \$42,000,000 worth of coal into Canada, and this in face of the fact that this Dominion has one and a quarter million millions of tons of coal deposits ready for the pick. Such a situation is absurd and certainly not characteristic of a progressive people such as we claim to be, especially when it is realized that we have the coal within the borders of our own country. It is true that Canada has but very little anthracite deposits—practically the only coal that can be used by our present system of heating—and that the bulk of her coal deposits are of a very low grade and consequently not of much value in their raw state, yet science has told us that these low grade deposits can be made to serve the purpose of the best anthracite coal. If such is the fact, then we in Canada cannot get to work too early to put into practice the recommendations and advice of the scientists, so that the bugbear of fear of starvation will be eliminated for all time. It is well known that the lowest grade of all coal—lignite—has been utilized to good purpose in European countries, and why not here?

The Advisory Council for Scientific and Industrial Research, a resume of whose mission is given on another page, has already taken up the coal problem of Canada very vigorously, the member having special charge of the work being Mr. R. A. Ross, the consulting engineer of Montreal, whose reputation as a power man is known throughout this continent. In a report on the question he urges that the Government set aside about \$200,000 so that the necessary machinery can be set up to make a start in utilizing the vast deposits of lignite in Saskatchewan and Alberta. Mr. Ross believes that lignite briquettes, equal to the best anthracite, can be made sufficiently cheap to the user and profitable to the manufacturer as to be worth while for the investment of capital. He considers that under this process lignite briquettes can be produced as low as \$6.50 or \$7 per ton—as compared with anthracite from \$12 to \$15 per ton under normal conditions in Saskatchewan — and yet leave a fair margin of profit to the miner and the manufacturer. From the briquetting of lignite to the briquetting of other low grade coal is an easy step. In fact, it is a cheaper process for it is not necessary to carbonize harder coal as is the case of lignite.

Should the experiment be successful then indeed will Canada be under a deep sense of obligation to the advisory council of the Federal Government, for then we would have convincing evidence that this country need no longer depend on another country for its coal supplies, but can utilize its own deposits at considerably less cost to the consumer. Canada with her vast coal deposits, plus the knowledge of how they can be worked profitably, has in her hands a great lever to develop her other resources for the benefit of the people.

The Advisory Council for Scientific and Industrial Research in Canada

DR. FRANK D. ADAMS, F.R.S.

In the following which is taken from an address, Dr. Frank Adams, F.R.S., explains very lucidly the scope of the work of the Advisory Council for Scientific and Industrial Research in Canada. As affecting the material potentialities of the Dominion, this advisory council, composed of the best men that Canada has got in their respective branches of research work and its commercial application, has a great responsibility and opportunity which no doubt will be lived up to. But the value of the Council's work to the country will depend very largely on how far citizens—collectively and individually—will back up its findings. For instance Dr. Adams points out the commercial possibilities of lignite, of which there are millions of tons in the three prairie provinces, but which must be briquetted before it can be shipped and used for fuel. The machinery to do this briquetting costs money, thus making the experiment somewhat costly for the individual so it should be undertaken by the Federal Government, but governments will not go very far without public opinion behind them and herein lies the opportunity of the municipal councils, particularly in the prairie provinces, to urge the Federal Government through delegations (if necessary) and resolutions to put into practice the recommendations of the Advisory Council, which will be published in this Journal as soon as made public.

On November 29th, 1915, there was constituted under this Committee of the Privy Council an Honorary and Advisory Council for Scientific and Industrial Research, composed of eleven members representing the scientific, technical and industrial interests of Canada. This Advisory Council was charged with the following duties:

(a) To ascertain and tabulate the various agencies in Canada which are now carrying on scientific and industrial research in the universities and colleges, in the various laboratories of the Government, in business organizations and industries, in scientific associations or by private or associated investigators.

(b) To note and schedule the lines of research or investigation that are being pursued by each such agency, their facilities and equipment therefor, the possibilities of extension and expansion, and particularly to ascertain the scientific man-power available for research and the necessity of adding thereto.

(c) To co-ordinate these agencies so as to present overlapping of effort, to induce co-operation and team work, and to bring up a community of interest, knowledge and mutual helpfulness between each other.

(d) To make themselves acquainted with the problems of a technical and scientific nature that are met with by our productive and industrial interests, and to bring them into contact with the proper research agencies for solving these problems, and thus link up the resources of science with the labor and capital employed in production so as to bring about the best possible economic results.

(e) To make a scientific study of our common unused resources, the waste and by-products of our farms, forests, fisheries and industries, with a view to their utilization in new or subsidiary processes of manufacture and thus contributing to the wealth and employment of our people.

(f) To study the ways and means by which the present small number of competent and trained research men can be added to form the students and graduates of science in our universities and colleges, and to bring about in the common interest a more complete co-operation between the industrial and productive interests of the country and the teaching centres and forces of science and research.

(g) To inform and stimulate the public mind in regard to the importance and utility of applying the results of scientific and industrial research to the processes of production by means of addresses to business and industrial bodies, by the publication of bulletins and monographs, and such other methods as may seem advisable.

It will be observed that this is not another Commission, but an Advisory Council.

The Council has thus been in existence but four months, and has devoted this time, in addition to developing its organization, to a careful general study of the wide range of problems coming under its purview.

It was found that there were certain matters which could and should be taken up at once. On these the Council at once proceeded to act. Others were subjects which required more careful thought and longer study, since it was of vital importance that no mistake should be made through precipitated action leading to false steps which would have to be retraced.

The matters on which the Council has already taken action are the following:

(1) It has drawn up and has had printed four sets of questionnaires for distribution to the following:

(a) The managers and directors of Canadian industries.
(b) The members of scientific, professional and technical societies.

(c) The universities of the Dominion.

(d) The Government Departments, both Dominion and Provincial.

From the answers to these questionnaires the Council will obtain the information required for the completion of the studies set forth under heads (a) and (b), and to a certain extent under head (d) in the schedule given above.

(2) It has advised the Government, in order to encourage research, to establish twenty studentships each having a value of \$600 to \$750 per annum, and several scholarships each having an annual value of \$1,500 at the Universities or Technical Colleges of the Dominion. These will be given to men carefully selected for the promise and capacity which they have shown in the prosecution of research work.

The Council aims at training through these studentships and scholarships a body of men such as is to be found in Germany, France, or the other countries of Europe, who are fitted to undertake research and obtain results, and who will be available for such work in connection with the industries of the Dominion. Relatively few men of this class are now to be found in Canada.

(3) The Council have recommended to the Government that assistance be given to the Provincial Governments, local industries or other recognized bodies, should they desire to establish local institutes and bureaus for industrial research at important industrial centres in Canada. This aid is to be given only when the local bodies have themselves subscribed sums of money sufficient to ensure the successful prosecution of the work when aided by the Government, and such grants are to be made only when the plan and work of the proposed bureau has been carefully examined and approved of by the Council.

(4) The Council is also completing a very careful study which has been taken up in connection with the officers of the Federal Department of Mines as to the possibility of producing a suitable supply of good, cheap fuel for the eastern plains, more especially in the Provinces of Saskatchewan and Western Manitoba.

Forest Management.

(5) The Council having in view the very serious depletion which is taking place in the forests of eastern Canada, has, after a careful survey, and on the recommendation of the Foresters of the Dominion, advised the Government to make at once a very considerable grant for the purpose of beginning an investigation to be carried out under the Forestry Branch of the Department of the Interior into the best methods which can be adopted from among the various well known plans of forest management as practised in Europe for the purpose of bringing the forests of eastern Canada under a regular system of cultivation similar to that under which the European forests now yield to the respective Governments or to their owners a large and regular annual return, while the capital represented by the forest itself remains unimpaired or is actually increased in value.

Among the various subjects to which the Council will address itself in the immediate future may be mentioned the best method of tabulating the natural resources of the Dominion so that all the information which exists concerning them in various Government Departments and elsewhere may be made readily available. This is a task which it is one of the functions of the Government to carry out, and which can only be accomplished satisfactorily by Government agencies.

The Municipalities of Canada and the Fisheries

FREDERICK W. WALLACE,
Editor of Canadian Fisherman.

In the following article Mr. F. W. Wallace points out one of the shortcomings of our municipal administration, namely, the almost contemptible indifference of many local authorities to public markets, the control being left too often in the hands of superintendents who are incapable of understanding that cleanliness is very necessary to our present standards of living. In every public market there should be one part allotted entirely for the display of fish. This part, or separate wing if necessary, should be kept so clean as to create a demand for fish, and thus encourage one of the great industries particularly indigenous to the waters of Canada, but which up to now has had to find foreign markets for the larger part of the output. There is no doubt but what municipal authorities in Canada can do much, by the building of up-to-date fish markets, to encourage the people to eat one of the most palatable and nourishing of foods, besides being one of the cheapest, and thus help to keep down the cost of foodstuffs in their respective communities.

Canada possesses in her rivers and lakes, and in the territorial waters of, and adjacent to, her Atlantic and Pacific coasts, the most abundant and prolific fisheries in the world. There is no limit to their development, but so far, Canadians have allowed most of our fishery wealth — that immediately outside our territorial jurisdiction but adjacent to our own ports — to be exploited by the fishermen of other nations — notably American and French.

The greater part of the catch of our own fishermen — amounting in value to a total of \$34,000,000 annually—is not consumed in Canada, but is exported to other countries. Practically all the salt codfish caught by Canadian fishermen on the Atlantic is exported to Europe, the West Indies and South America; the bulk of our lobsters go to the United States or to Europe; our Pacific halibut to the United States takes a great proportion of the fresh fish caught on the lakes and rivers. Since the war started, enormous quantities of Canadian fish have been exported to the Allied countries to make up for the shortage in their own home waters.

Huge quantities of the fish foods caught by United States fishermen are taken from the "grounds" and "banks" outside the three-mile-limit of the Canadian Pacific and Atlantic coasts. Prior to the war, the French Grand Bank fleet, coming from France and operating from St. Pierre and Miquelon, reaped a big harvest from the fishing grounds adjacent to Canada and Newfoundland.

There can be no legal objection to this. The seas are free to all men outside territorial jurisdiction, but it shows that Canadians are not utilizing for themselves the valuable sea foods procurable at their own doors. Why should the bulk of our fish products be exported? Why aren't the fishing grounds being developed more by Canadian fishermen?

There are two answers to these questions. First — the population of Canada is not large enough to constitute a market capable of consuming the present catch. Second — the present population does not appreciate the value and economy of fish as a food. Canadians are not fish-eaters.

If the home market developed to the extent it should to be on a par with the fish consuming public of Great Britain and Europe; if Canadians would eat more fish and less meat, there would be a vast increase in the market for the products of our fishermen and more fishermen and more vessels would go into the industry.

The export trade is largely a canned and cured fish trade. Capital is tied up in the product until such time as it is marketed. The home market is for fresh fish. Such fish is consumed shortly after the fish leaves the water. In the export trade, capital is turned over, say, in six weeks; in the fresh fish home trade, it is turned over inside of two weeks.

The home market means a quick turn-over of capital; it keeps the money in the country; Canadians are utilizing as food one of our natural resources; they are keeping down the cost of living; they are encouraging more fishermen to go into the industry; they are assisting to develop the fishing grounds which are primarily ours by virtue of their location to our shores, and, last, but not least, they are encouraging shipbuilding for the fishing fleets and the industries in its train, and training young Cana-

dians in a sea-faring vocation which in Great Britain today has proved to be the salvation of the Empire. If the spirit of sea-faring had been allowed to die in Great Britain, the mastery of the sea would be in Germany's hands now.

The cradle of the British Navy and the British Mercantile Marine is the British Fishing Fleet. The fish eating population of Great Britain has kept the fishing fleets alive. There is no gainsaying that fact.

Every Canadian citizen, who is worthy of citizenship and who is proud of his or her citizenship, would do well to look into their duties as citizens. Upon the citizen depends the State. It can either flourish or become decadent by the varying moods of public spirit. When the citizens of Rome began to fail in their duties as citizens, then Rome fell. When the aristocracy of France began to over-ride the citizens, then the Monarchy was wiped out, and the aristocracy went with it.

Encourage home industries! is a war-time slogan which should live. The fisheries, of all Canada's national industries, has been the most neglected by her citizens.

How can the municipality do its duty to the fisheries? Very easily.

Every town has a public market, if it hasn't, it should have. In most Canadian towns, the public market relegates the poorest and dingiest corner in the building to the local fish merchant. He is regarded by the grocer and the butcher as being a sort of peddler to be poked into obscurity. If there is no local dealer handling fish exclusively, the butcher will carry fish of certain kinds as a Friday side-line for the religious prescriptions of his customers.

This sort of thing should be done away with. The fish stall in a small public market should be a good stand. It should be properly equipped with tiled walls, cement or tiled floors, slab counters, cooled glass show-cases, and refrigerator chambers for storing. In large cities, a market devoted exclusively to fish should be erected.

Were these facilities given by the municipality, there would be no lack of responsible men to occupy the stalls. With first class equipment, fish could be attractively displayed and would appeal to the consumer. The occupant of the fish stall would soon work up a trade. Give him a good stall and he'll do the rest.

In the city of Montreal, the local public fish markets are housed in wretched buildings — antiquated, out-of-date, and anything but attractive. The merchants who occupy them would welcome a change. They have fought for modern markets for years, but cannot get them. They have to do the best they can in the places that are given to them by the city. The same applies to other towns and cities throughout Canada. Fish markets are either neglected or conspicuous by their absence.

This matter is of the utmost importance. It is a really great problem, and one which should be taken up by every municipal council throughout the Dominion. We have overlooked many such problems in the past, and it is only in a time of stress like the present that we begin to realize the big things we have neglected.

The public fish market, properly equipped and run by a man who knows his business, will encourage the citizens to eat more fish and reduce living costs; assist in developing among ourselves a great natural resource, and encourage men to pursue a seafaring vocation, which from time immemorial, has been the strength of the British Empire.

SHIPBUILDING AND SKILLED LABOR.

As between Great Britain and Canada, the difference in the cost of skilled labor has hitherto been the chief ground of objection to shipbuilding proposals here. There are many who believe that one effect of the war will be to bring the prices of such labor on the two sides of the ocean nearer to an equality, and that in this way the disadvantage of Canada as a field for steel shipbuilding will largely, if not wholly disappear. Present conditions seem to give assurance that for a considerable period shipbuilding will be a profitable business here; and if the industry be firmly established in these times of high prices, there will be less difficulty than there has hitherto been in making it one of a permanent character.—Hon. W. S. Fielding.

THE PROVINCE OF ONTARIO

Municipalities.

RURAL, 544, Population	1,013,595
URBAN, 292, Population	1,429,271
	2,442,866

Area assessed by Municipalities: 24,799,117 acres.

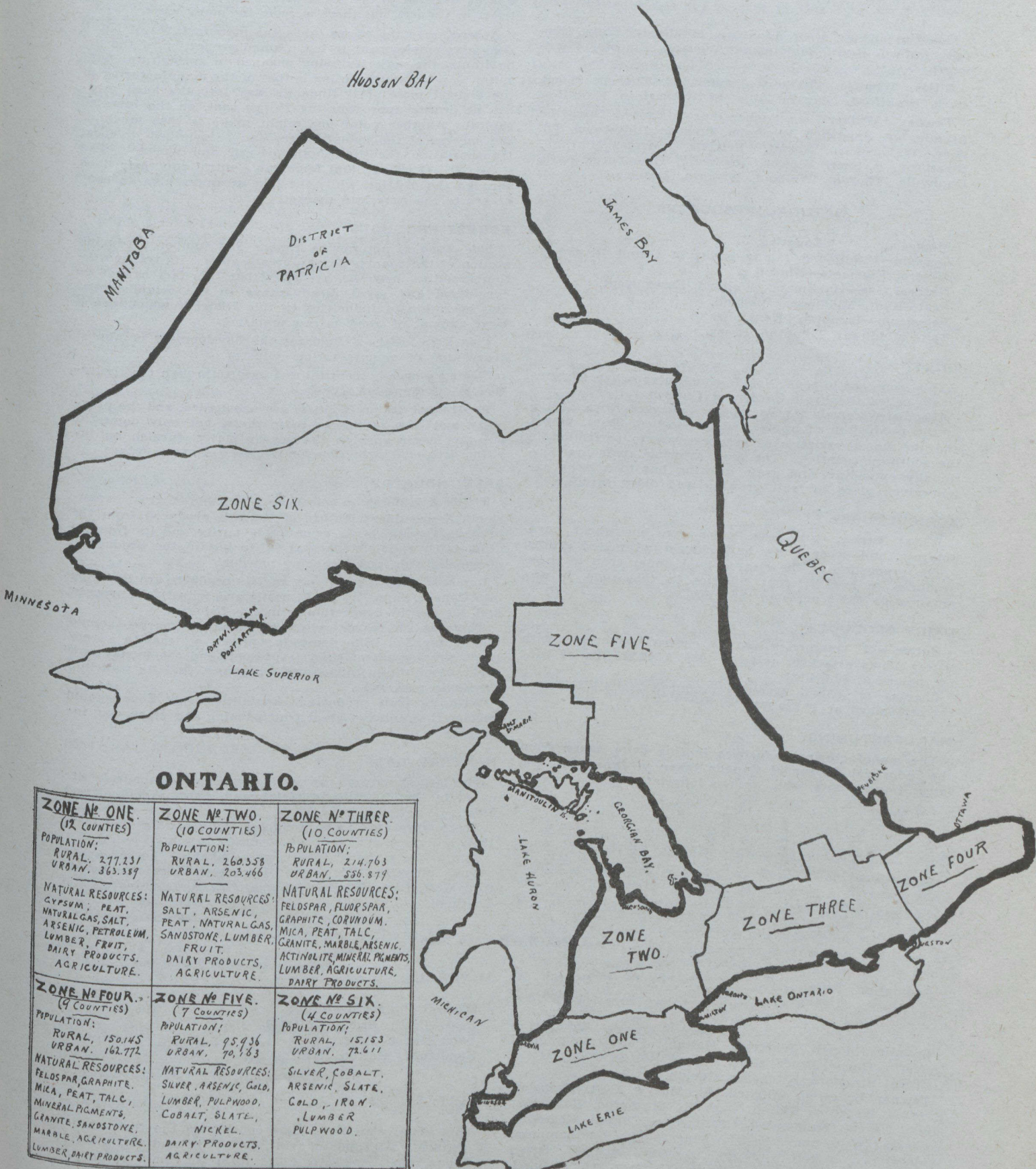
The Province of Ontario, industrially speaking, is the most advanced in Canada, largely because of cheap power—thanks to Sir Adam Beck and his Hydro-Electric Commission—and the progressive spirit of the inhabitants. But in agriculture, outside one or two splendid examples, she has not made that advance that we would expect of such a fertile country. The principal reasons being the exodus, some few years back, of many of the farmers to the west, and the blandishments of city life. This is seen in the fact that over 50% of the population live in urban centres. But during the last few years conditions in the rural districts are rapidly changing—better roads, more communal life, cheap, rural telephones, and easy transportation—and farming to-day is rightly looked upon more as a scientific and healthy profession than an incongenial and laborious spade work job. This has been largely brought about by agricultural colleges, which in Ontario are equal to those in any other part of the world.

In natural resources, which are dealt with separately in each of the zones, Ontario is remarkably fortunate, but as in the rest of Canada, they have been more exploited than developed. As an example of this exploitation we show in the following pages how in nickel, by the refining in a foreign country, one of this essential ingredient in the manufacture of steel, and especially indigenous to the Sudbury district—in fact, the Sudbury deposits are the largest in the world—the loss to the Province of Ontario during the last ten years reached the huge sum of \$112,568,444. This we understand is being remedied in the erection of two large refineries near the nickel deposits. And so one might go on with each of the resources indigenous to the Province, showing that because of the lack of public spirit and private enterprise, the wealth of the province, instead of being utilized for the benefit of the community, has been allowed to go out for the benefit of other peoples, who do not care a snap for the progress of Ontario. What is wanted to break down the apathy towards the wonderful opportunities presented in natural resources and their development, and which for our present purpose, include the land and the forest, is local pride, and to enthuse that we have divided the province into six zones; each one sufficiently small that the inhabitants will know every foot of ground. While we have much data dealing with each zone, we can only—through lack of space—deal very broadly with the resources and industries, but we hope even this will be sufficient to create enough local interest to be “asked for more,” which we will be pleased to give out of our abundance of data supplied principally from official records.

CIVIC PREPAREDNESS.

When this war is over Canada will be face to face with the greatest opportunity of her national life, now made possible by the extreme sacrifice of so many of her sons and daughters, and which she has not only the right to, but must grasp if those great sacrifices have not been made in vain. How she will be able to take advantage of the opportune moment depends absolutely on the preparations being made now by the citizens through their public bodies, whether they be Federal, Provincial or Municipal; but especially municipal for the principal reason that owing to the exigencies of their office civic representatives are in daily touch with the people—hence their greater responsibility in rising to that standard of preparedness so magnificently set by our men and women who are to-day representing us on the fields of Flanders.

Province of Ontario Divided Into Zones



ONTARIO.

<p>ZONE No ONE. (12 COUNTIES)</p> <p>POPULATION: RURAL, 277,231 URBAN, 363,389</p> <p>NATURAL RESOURCES: GYPSUM, PEAT, NATURAL GAS, SALT, ARSENIC, PETROLEUM, LUMBER, FRUIT, DAIRY PRODUCTS, AGRICULTURE.</p>	<p>ZONE No TWO. (10 COUNTIES)</p> <p>POPULATION: RURAL, 260,358 URBAN, 203,466</p> <p>NATURAL RESOURCES: SALT, ARSENIC, PEAT, NATURAL GAS, SANDSTONE, LUMBER, FRUIT, DAIRY PRODUCTS, AGRICULTURE.</p>	<p>ZONE No THREE. (10 COUNTIES)</p> <p>POPULATION: RURAL, 214,763 URBAN, 556,879</p> <p>NATURAL RESOURCES: FELDSPAR, FLUO SPAR, GRAPHITE, CORUNDUM, MICA, PEAT, TALC, GRANITE, MARBLE, ARSENIC, ACTINOLITE, MINERAL PIGMENTS, LUMBER, AGRICULTURE, DAIRY PRODUCTS.</p>
<p>ZONE No FOUR. (9 COUNTIES)</p> <p>POPULATION: RURAL, 150,145 URBAN, 162,772</p> <p>NATURAL RESOURCES: FELDSPAR, GRAPHITE, MICA, PEAT, TALC, MINERAL PIGMENTS, GRANITE, SANDSTONE, MARBLE, AGRICULTURE, LUMBER, DAIRY PRODUCTS.</p>	<p>ZONE No FIVE. (7 COUNTIES)</p> <p>POPULATION: RURAL, 95,936 URBAN, 70,183</p> <p>NATURAL RESOURCES: SILVER, ARSENIC, GOLD, LUMBER, PULPWOOD, COBALT, SLATE, NICKEL, DAIRY PRODUCTS, AGRICULTURE.</p>	<p>ZONE No SIX. (4 COUNTIES)</p> <p>POPULATION: RURAL, 15,153 URBAN, 72,611</p> <p>SILVER, COBALT, ARSENIC, SLATE, GOLD, IRON, LUMBER, PULPWOOD.</p>

ONTARIO.—Continued.

ZONE ONE (See Map).

Population: Rural	277,231
Urban	363,389
	640,620

It might be mentioned here that a new Industrial Census of Canada has just been completed under the direction of Mr. C. A. Coats, Dominion Statistician, which shows a large increase in the manufactures of this and other districts in Ontario, but there is room for many more.

Counties: Essex, Kent, Lambton, Middlesex, Elgin, Norfolk, Oxford, Brant, Haldimand, Welland, Lincoln, Wentworth.

Cities: Windsor, Chatham, London, St. Thomas, Woodstock, Brantford, Niagara Falls, St. Catharines, Hamilton.

Towns: Walkerville, Amherstburg, Essex, Kingsville, Leamington, Sandwich, Blenheim, Dresden, Ridgetown, Tilbury, Wallaceburg, Forest, Petrolia, Sarnia, Parkhill, Strathroy, Aylmer, Simcoe, Ingersoll, Tilsonburg, Paris, Dunnville, Thorold, Welland, Niagara, Dundas.

NATURAL RESOURCES.

- Minerals. Counties.**
Gypsum—Haldimand (along banks of Grand River.)
Mineral Pigments—Norfolk.
Natural Gas—Haldimand, Welland, Essex Kent.
Peat—Kent, Middlesex, Welland.
Petroleum—Lambton, Kent, Brant.
Salt—Middlesex, Lambton, Essex.

FRUIT:

This zone, with zone No. 2, constitutes what is commonly called the Fruit Garden of Ontario.

The district rivals the Annapolis Valley of Nova Scotia, in the production of apples, while peaches, pears, plums, and the finest varieties of grapes grow to perfection in the southern counties. The fruit growing areas are continually extending, and grain growing has to a large extent given place to fruit growing and dairy farming.

AGRICULTURE:

Wheat, barley, oats, peas, beans, rye, buckwheat, corn, potatoes, and other roots, hay, clover and mixed grains. The proportion of the cleared land under crop to these products, in the different counties in this zone, is approximately 685.3 acres to the 1,000.

DAIRY PRODUCTS.

Butter.—59 creameries and 16 cheese factories, with butter plants attached, made in 1915, 8,567,325 lbs. of butter, valued at \$2,484,131.
Cheese.—107 cheese factories produced 24,814,473 lbs. of cheese, valued at \$3,830,973.

MANUFACTURING:

The manufacturing industries in this Zone, taken from the Industrial Census of Canada taken in June, 1911, the latest figures obtainable are as follows:—

No. Industries.	Capital.	Employees.	Salaries and Wages.	Cost of Material.	Value of Products.
2,169	\$191,961,612	67,099	\$34,048,605	\$87,682,752	\$172,667,618

According to the above table, the manufactures of No. 1 Zone give employment to but a small proportion of the inhabitants, the majority being engaged in agricultural pursuits. A point worth noting is that of the manufacturing in the district most of it finds its way into the local market, at profits approximating 25 per cent. on the invested capital. Another point one might make is that much of the success of the manufactures can be ascribed to local transportation facilities—both by rail and water. The C. P. R., G. T. R. and Michigan Central run their lines through the district, while the lake steamers give an easy access to the American market.

FOREST PRODUCTS:

This Zone is not now a timber and lumber producing section of the country to any great extent. Its transportation facilities, however, are such that this fact cannot be considered any great disadvantage to the establishment and operation of industries in this District, which use a large amount of wood as raw material.

This Zone offers a field for the development of almost every kind of manufacturing industry.

Electric power is plentiful and cheap, through the Hydro-Electric Commission's lines.

The transportation facilities are unequalled, and the proximity and ease of access to markets, not only domestic, but the larger ones in the nearby states, furnish an inviting area of distribution for products of every nature.

SALT INDUSTRY:

The Salt industry in this Zone is capable of great expansion. A prominent feature of the salt produced from the brine in Canada is its remarkable purity and its freedom from other salts detrimental to its use in the production of caustic soda and bleaching powder.

Immense quantities of salt and its products are imported into Canada annually, for domestic and industrial purposes, and for use in connection with the fisheries.

There is no reason why the Canadian market should not be supplied from domestic sources, at least to a very much greater extent than at present, and the money now sent out of the country for its purchase find its way into Canadian pockets.

With its fruit producing capabilities, this Zone should become the centre of great fruit packing and preserving industries.

NATURAL GAS:

The largest natural gas producing area in Canada is situated in the Counties of Haldimand, Essex, Welland and Kent.

There were over 1,600 producing wells in this district in 1915.

The gas is supplied to a large number of the cities and towns, amongst which are: Hamilton, Dundas, Brantford, Galt, Paris, Welland, Niagara Falls, Leamington and Chatham.

ZONE TWO (See Map.)

Population: Rural	260,358
Urban	203,466
	463,824

Counties: Perth, Waterloo, Halton, Peel, Wellington, Dufferin, Huron, Bruce, Grey, Simcoe.

Cities: Stratford, Kitchener, Guelph.

Towns: Listowell, Mitchell, St. Mary's, Galt, Hespeler, Preston, Waterloo, Milton, Oakville, Brampton, Harriston, Mount Forest, Palmerston, Orangeville, Clinton, Goderich, Seaforth, Wingham, Chesley, Kincardine, Southampton, Walkerton, Wiarton, Durham, Hanover, Meaford, Owen Sound, Thornbury, Alliston, Barrie, Collingwood, Midland, Orillia, Penetanguishene, Stayner,

MINERALS.

- Mineral Pigments**—Halton.
Peat—Perth, Bruce, Dufferin.
Salt: Huron, Bruce.
Sandstone: Halton, Peel.

FRUIT:

This Zone, with Zone One, constitutes the fruit garden of Ontario. All kinds of fruit, both large and small, thrive abundantly. These two zones form the most productive fruit area in Canada.

ONTARIO—ZONE TWO.—Continued.

AGRICULTURE:

Although this Zone, like Zone One, is largely given over to fruit growing, grain and root crops are still produced extensively.

Approximately 700.75 acres in every thousand acres of cleared land is under crop to

Wheat, Barley, Oats, Beans, Peas, Rye, Buckwheat, Corn, Potatoes and other roots, Hay and Clover, Mixed Grains.

FOREST:

This Zone is in the same position as Zone No. One with regard to Forest Products.

BUTTER AND CHEESE:

The creameries, numbering 51, and eight cheese factories to which butter factories are attached, produced 8,785,690 lbs. of butter during 1915, valued at \$2,484,443.

7,334,488 lbs. of cheese were produced during the same period in 38 factories, valued at \$1,085,615.

TRANSPORTATION:

Grand Trunk Railway.
Canadian Pacific Railway.
Michigan Central Railway.
Pere Marquette Railway.
Canada Steamship Lines, (Northern Navigation Co. of Ontario).

Dominion Transportation Company.

Meaford Transportation Company.

Lake Simcoe Navigation Company.

The same opportunities for the development of manufacturing industries are present in this Zone as in Number One.

The transportation facilities are equally favourable.

The salt producing field extends into the counties of Bruce and Huron, and the opportunities for expansion apply equally to this Zone as to Zone One.

MANUFACTURES:

The manufacturing industries in this Zone are varied, and consist of the following:

No. Industries.	Capital.	Employees.	Salaries and Wages.	Cost of Material.	Value of Products.
1,573	\$78,543,541	37,377	\$16,313,109	\$44,078,256	\$85,507,400

As will be seen from the above table, these 1,573 factories employ 37,377 persons, have an aggregate capital of \$78,543,541, pay out in salaries and wages \$16,313,109, use material valued at \$44,078,256, and have an output of \$85,507,400. Deducting the amount paid in wages and salaries, and the cost of material from the value of the output, this leaves a gross profit of \$26,116,035, or 31.96 per cent.

ZONE THREE.

Population: Rural	214,763
Urban	556,879
	771,642

Counties: York, Ontario, Victoria, Durham, Peterborough, Northumberland, Hastings, Lennox and Addington, Frontenac, Prince Edward.

Cities: Toronto, Peterborough, Belleville, Kingston.

Towns: Aurora, Leaside, Newmarket, Weston, Oshawa, Uxbridge, Whitby, Lindsay, Bowmanville, Port Hope, Campbellford, Cobourg, Deseronto, Trenton, Napanee, Picton.

FOREST:

This Zone is in practically the same position as Nos. One and Two, with regard to forest products.

BUTTER and CHEESE:

Thirty-three creameries, and forty cheese factories with butter plants attached, produced 7,112,210 lbs. of butter in 1915, valued at \$1,921,540.

279 cheese factories produced in the same period 34,123,411 lbs. of cheese, valued at \$5,180,824.

MANUFACTURES:

This is the premier manufacturing district of the Province. The establishments consist of the following:

No factories.	Capital.	Employees.	Salaries and Wages.	Cost of Material.	Value of Products.
2,371	\$197,991,994	90,782	\$49,602,451	\$114,095,829	\$212,133,147

The above table shows that these 2,371 factories employ 90,872 persons, pay out in salaries and wages \$49,602,451, have an aggregate capital of \$197,991,994, use material valued at \$114,095,829, and have an output of \$212,133,147. The gross profit from the operation of these industries, after deducting salaries and wages and cost of material amounts to \$48,434,867, equal to 24.46 per cent. on the capital employed.

NATURAL RESOURCES:

Minerals.

Actinolite—Hastings, Addington.

Arsenic—Hastings.

Corundum—Hastings.

Granite—Hastings, Ontario.

Feldspar—Frontenac.

Fluorspar—Hastings.

Graphite—Hastings, Addington, Frontenac.

Marble—Hastings.

Mica—Frontenac.

Peat.—York, Ontario, Peterborough, Victoria, Hastings, Lennox and Addington.

Talc.—Hastings, Frontenac.

FRUIT:

While this Zone is not essentially a fruit growing district in the same sense that Numbers One and Two are, the soil and conditions are favourable to the cultivation of most varieties.

AGRICULTURE:

Approximately 696.04 acres per thousand of cleared land are under cultivation to Wheat, Barley, Oats, Peas, Beans, Rye, Buckwheat, Corn, Potatoes and other roots, Hay and Clover and mixed grains.

TRANSPORTATION:

Canadian Pacific Railway.

Grand Trunk Railway.

Canada Steamship Lines.

Niagara, St. Catharines and Toronto Navigation Co.

Niagara Navigation Co.

This Zone offers the same favourable opportunity for the development of manufactures as Zones One and Two. It is the premier manufacturing district of the Province, and perhaps of Canada.

ONTARIO.—Continued.

ZONE FOUR.

Population: Rural 150,145
 Urban 162,772

312,917

Counties—Leeds, Lanark, Carleton, Grenville, Dundas, Russell, Stormont, Glengarry, Prescott.

Cities—Ottawa.

Towns: Gananoque, Brockville, Almonte, Carleton Place, Perth, Smith's Falls, Eastview, Prescott, Rockland, Cornwall, Alexandria, Hawkesbury, Vankleek Hill.

NATURAL RESOURCES:

Minerals.

Feldspar—Lanark.

Graphite—Lanark, Leeds.

Granite—Leeds.

Marble—Lanark.

Mica—Lanark.

Mineral Pigments—Leeds.

Peat—Leeds, Lanark, Carleton, Stormont, Prescott.

Sandstone.—Carleton.

Talc.—Leeds.

FRUIT:

Conditions practically the same as Zone Three.

AGRICULTURE:

Approximately 637.72 acres per thousand of cleared land are under crop to Wheat, Barley, Oats, Peas, Beans, Rye, Buckwheat, Corn, Potatoes and other roots, Hay and Clover and mixed grains.

FOREST:

Same as Zone Three.

BUTTER AND CHEESE:

The production of butter in this Zone is comparatively small. It is, however, the largest producer of cheese in the Province.

The butter produced in six creameries and 89 cheese factories with butter factories attached, amounts to 1,332,067 lbs., valued at \$394,950

Production of cheese at 554 factories, 57,407,558 lbs., valued at \$7,577,005.

MANUFACTURES:

The manufacturing establishments in this Zone are: 1,260, divided as follows:

No.	Capital.	Employees.	Salaries and Wages.	Cost of Material.	Value of Products.
1,260	\$48,450,260	22,484	\$10,260,046	\$26,030,655	\$ 47,914,504

The following table shows that these 1,260 factories employ 22,484 persons, pay out in salaries and wages \$10,260,046, have an aggregate capital of \$48,450,260, use material valued at \$26,030,655, and have an output of \$47,914,504. The gross profits from these operations of these industries, after deducting salaries and wages and cost of material, amounts to \$11,623,803, equal to 23.99 per cent. on the capital employed.

TRANSPORTATION:

- Canadian Pacific Railway.
- Grand Trunk Railway.
- Canada Steamship Lines.

ZONE FIVE.

Population: Rural 95,936
 Urban 70,168

166,099

Counties: Muskoka, Haliburton, Renfrew, Parry Sound, Sudbury, Manitoulin, Nipissing, Temiskaming.

Towns: Bala, Bracebridge, Gravenhurst, Huntsville, Arnprior, Pembroke, Renfrew, Kearney, Parry Sound, Powassan, Trout Creek, Chelmsford, Poppercliff, Froid Mine, Massey, Sudbury, Webbwood, Gore Bay, Little Current, Barfield, Cache Bay, Mattawa, North Bay, Sturgeon Falls, New Liskeard, Porcupine, Cobalt.

NATURAL RESOURCES:

Minerals.

Cobalt—Temiskaming.

Gold—Temiskaming.

Silver—Temiskaming.

Nickel—Sudbury. (See Table opposite.)

Corundum.—Haliburton.

Copper—Sudbury, Parry Sound.

Granite—Muskoka, Parry Sound. . .

Graphite—Renfrew, Haliburton.

Peat—Sudbury.

Sulphur—Sudbury.

This Zone includes what is perhaps the richest mineral district in Canada: The Cobalt silver mines, the Porcupine Gold mines, and the Sudbury Nickel mines.

Only a very small portion of the ores produced at these mines is refined in Canada. A glance at the "Nickel" table on page — will give some idea of the financial loss to Canada, arising out of the short-sighted policy of shipping our natural products out of the country for the refining and manufacturing processes.

FRUITS.

This Zone is more suited to agricultural and dairy products than to fruit culture owing to climatic conditions, although most small fruits may be grown very successfully. The district abounds in wild fruits, such as strawberries, raspberries, red and black currants, high bush cranberries and gooseberries.

AGRICULTURE.

The Zone, with No. 6, contains the Great Clay Belt of New Ontario, which extends from about 100 miles north of the C. P. R. transcontinental line north to about 150 miles south of James Bay. This belt comprises about twenty million acres available for cultivation. In no portion of the Province can bigger crops of hay, roots, barley, peas, oats and wheat be grown. A great feature of this farming district is that it is practically free from stones.

About 695 acres in every thousand of cleared land is now under cultivation.

FOREST.

Throughout this Zone there are abundant quantities of merchantable timber. North of the height of land and between it and James Bay are enormous quantities of wood suitable for pulp wood. Pulp mills can be erected with advantage along the line of the National Transcontinental Railway wherever it is crossed by a river. These mills can be operated with power generated from the numerous waterfalls in the district.

DAIRY.

In this Zone clover, alfalfa, field roots, barley and other grains can be grown with phenomenal success, and this makes the conditions ideal for dairying and beef cattle raising.

The production of butter for the year 1915 was only 291,445 lbs., valued at \$83,569, and that of cheese 1,311,096 lbs., valued at \$189,888.

ONTARIO—ZONE FIVE.—Continued.

MANUFACTURES.

The manufacturing industries in this Zone consist of the following:

No.	Capital.	Employees.	Salaries and Wages.	Cost of Material.	Value of Product.
460	\$31,625,129	9,673	\$ 4,864,614	\$15,590,027	\$ 28,841,020

These 460 factories employ 9,672 persons, pay out in salaries and wages \$4,864,614, have an aggregate capital of \$31,625,129, use material to the value of \$15,590,027, and have an output of \$28,841,020. Deducting the amount paid in salaries and wages and the cost of material from the value of the output, a gross profit is realized of \$8,386,379 or over 26½ per cent. on the capital employed.

TRANSPORTATION.

- Canadian Pacific Railway.
- Grand Trunk Railway.
- Grand Trunk Pacific Railway.
- Canadian Northern Railway.
- Temiskaming and Northern Ontario Railway.

ZONE SIX.

Population: Rural	15,153
Urban	72,611
	87,764

Counties: Algoma, Thunder Bay, Rainy River, Kenora.

Cities: Sault Ste. Marie, Fort William, Port Arthur.

Towns: Blind River, Bruce Mines, Steelton, Thessalon, Fort Frances, Rainy River, Dryden, Keewatin, Kenora, Sioux Lookout.

NATURAL RESOURCES:

Minerals.

Iron—Algoma, Thunder Bay.

Zinc—Thunder Bay.

FRUIT:

This Zone is in practically the same position as No. 5, with regard to the production of fruit.

AGRICULTURE:

This Zone, with No. 5, includes the great clay belt of New Ontario, and the conditions are similar.

About 752.03 acres in every thousand of cleared land are under cultivation to Wheat, Barley, Oats, Peas, Beans, Rye, and Clover and mixed grains.

FOREST:

Same as Zone 5.

DAIRY:

Same as Zone 5.

MANUFACTURES:

The manufacturing industries in this Zone consist of the following:

No.	Capital.	Employees.	Salaries and Wages.	Cost of Material.	Value of Product.
221	\$46,034,235	9,366	\$5,605,895	\$18,085,986	\$31,554,097

These 221 factories employ 9,366 employees, pay out in salaries \$5,605,895, have an aggregate capital of \$46,034,235, use material to the value of \$18,085,986, and have an output of \$31,554,097. Deducting the amount paid in salaries and wages and the cost of material from the value of the output, there is a great profit realized in these industries of \$7,862,216, or equal to 17.0 per cent. on the capital employed.

TRANSPORTATION:

- Canadian Pacific Railway.
- Grand Trunk Pacific Railway.
- Canadian Northern Railway.
- National Transcontinental Railway.
- Algoma Central Railway.

Developing Winter Industries on the Farm

By J. S. WOODSWORTH,

The editor has asked me to deal with the subject of "How the farmer can profitably utilize his winter evenings."

Not as giving advice to the farmers, but rather to show the disabilities under which they work, I offer a few suggestions.

It should be noted that even in the West the farmer has not so many long winter evenings as he is supposed to have. In the open grain country there is, of course, comparatively little work after the "freeze-up." Even here there is often considerable teaming, a few head of stock to be looked after, and if wooded country is within reach, fuel and posts to be procured. In the older settled parts of the prairie and in the newer and rougher districts of the north, the settlers keep considerable stock. This means work all winter through. This year in Manitoba the short courses in agriculture are being given chiefly in the "foreign" districts. This for two reasons—first, because the foreigners badly need the instruction, and secondly because in the English-speaking districts so many young men are at the front that there are few free to take advantage of the courses offered.

In referring to these "foreign" settlements, attention should be called to the possibilities of developing winter industries. Many of the non-English immigrants come here without any capital, content to live very simply and skilled in various kinds of handicrafts. At home, during the winter they weave beautiful rugs, do fine wood-work and

carving, make pottery, musical instruments, etc. Why should these industrial capabilities be lost to Canada? Was it not Flemish immigrants who gave England her textile industries? Why should not the resources of our Italian and Slavic immigrants be more fully utilized in Canada? This means a little available capital, the providing of market facilities and—far more difficult—the changing of the attitude of our Canadian people toward their immigrant fellow-citizens.

But returning to the winter evenings of the typical prairie farmer. Isolation, lack of social opportunities and lack of leadership seem to be three of the outstanding difficulties.

If the farmer goes out of his own home to spend an evening he must travel a considerable distance, often in intensely cold weather, over poorly travelled roads. As one visits the old French-Canadian, the Ruthenian, and Mennonite and Doukhobor villages one cannot but wonder whether the village system has not much to commend it. As a resident of a rural Jewish colony put it—"the separate farm is good for the horses; the village is good for the people."

If we must have our large checker-board farms, then, at least, they should not be separated by large areas of unoccupied land. It seems preposterous that for the sake of a few speculators who contribute nothing to the community, the general development of a district should be retarded and a whole generation should suffer social privations and economic loss.

Hydro-Electric Power of Ontario

General.

The Hydro-Electric Power Commission of Ontario was appointed by the Provincial Legislature of Ontario in May, 1906, to provide for the development, generation, transmission and distribution of electrical energy at cost to the various municipalities desiring it throughout the Province.

The Commission is essentially a non-political body, and is therefore in a position to undertake the above duties in an impartial manner.

Legislation:

The original Power Commission Act was passed in May, 1906, and has been amended from time to time. This legislation confers on the Commission the following general powers:

(a) To acquire lands, waterworks, plants for the transmission of power, and to develop, construct and operate any properties which may be necessary to secure an adequate supply of power for the municipalities of the Province.

(b) The Commission may enter into contracts with any corporation generating, transmitting or distributing electrical energy, and may also contract with any municipal corporation for the transmission and supply of energy required by the corporation.

(c) The Commission may also arrange for a supply of power for street lighting in townships, and for the distribution of electrical energy to farmers in rural districts.

(d) The Commission is fully empowered to regulate electric wiring installations, and may at any time order such work to be done in the installation, removal, alteration or protection of any works as the Commission may deem necessary for the safety of the public or workmen, or for the protection of property.

The Hydro-Electric Railway Act was passed in 1913 and amended in 1914, 1915 and 1916. Under this Act the Commission is empowered to provide for the construction and operation of a system of electric railways. Under the amendments to the original Act certain districts of a township may, through the Commission, promote and construct lines through their own section of the township without affecting the remaining portion of the municipality.

The Commission is also empowered to purchase existing electric railways by inserting proper clauses in the Agreement between the Commission and the municipality affected.

Certain contracts between the Commission and municipalities made in pursuance to the Hydro-Electric Railway Act of 1914 are legalized by the amendments passed in 1916.

Other important Acts affecting the activities of the Commission are as follows:

(a) The Development Act, Bill No. 168, was passed in 1916, authorizing the Commission to construct, erect, maintain and operate works for the purpose of diverting the waters of the Niagara, Welland, or tributary rivers for power development.

(b) The Restriction Act, Chapter No. 21, was passed in 1916, to provide for government supervision and restrictions of development of water powers in the province.

Export of Power.

At the present time the companies at Niagara Falls are exporting approximately 165,000 h.p. Arrangements have been made with the Commission to take approximately 50,000 h.p., so that after this supply has been taken there will still be exported approximately 115,000 h.p.

GENERAL WORK OF THE COMMISSION.

Municipal Electrical Inspection.

Electrical inspection throughout the Province of Ontario was, up to the last session of the Legislative Assembly of Ontario, carried on directly by the municipalities throughout the Province under the supervision of the Commission, requiring under such constitutions, the appointment of inspectors by each municipality, such inspectors and other appointments being made by the municipal council in each case, subject to the approval of the Commission, and all such municipal inspection departments were, in turn, under the supervision of the Commission. Under this arrangement a considerable amount of time and expense was necessarily expended in the selection of inspectors, the passage of by-laws and other matters which had to be dealt

with through the municipal councils. It was also very difficult to secure inspection in small surrounding municipalities, as it was necessary to bring about an understanding between each separate municipal council.

Underground and Street Lighting Construction.

Thirty-three municipalities have been given assistance with regard to ornamental street lighting systems and underground conduit construction. Plans have been drawn up and submitted with estimate of cost; cables, conduit, lighting standards, etc., have been purchased for many of these municipalities, and the installations have been supervised during construction by the Commission's Engineers.

Engineering Work.

The Commission, through its engineering staff supervision is well shown by the developments since the outbreak in the capacity of consulting engineer. Many problems of an engineering nature, such as pumping, street lighting, construction of distribution systems, etc., have been handled by the Commission.

There is an important feature of the Commission's work as the municipalities have been able to secure expert engineering advice at minimum cost, resulting in the most efficient installations being made for the use of electric power.

Municipal Purchasing.

Approximately 198 municipalities are availing themselves of the advantages of co-operation afforded by the purchasing department of the Commission, and during the past year the municipalities have purchased approximately \$700,000 worth of equipment through the Commission.

Developments of Hydro Since the War.

The importance of the Hydro-Electric Power Commission to the industrial manufacturing life of the province is well shown by the developments since the outbreak of war. In October, 1914, the combined power requirements of all the municipalities on the Niagara System amounted to 68,000 h.p. Shortly after the outbreak of war numerous firms received contracts for the manufacture of munitions, and at once turned to the Commission for the necessary supply of power. Owing chiefly to work of this nature the requirements of the municipalities on the Niagara System during October, 1916, amounted to 124,000 h.p. It is estimated that approximately 300 plants making munitions of war use electric power furnished by the Commission almost exclusively.

Summary of Undeveloped and Developed Water Powers in Ontario:

The following is an approximate summation of the total amount of power capable of development in the Province of Ontario:

	Horse-power.
Ottawa River and Tributaries	638,000
Great Lakes Tributaries	466,000
Hudson Bay Slope	250,000
James Bay Slope	1,500,000
International Boundary Rivers	2,045,000
Total Potentiality	4,929,000

Similarly the totals for the developed power may be summarized as follows:

	Horse-power.
Ottawa River and Tributaries	71,000
Great Lakes Tributaries	137,000
Hudson Bay Slope	22,000
James Bay Slope	70,000
International Boundary Rivers	462,000
Total Developed Power	702,000

Of this latter total, about 574,000 h.p. is electric energy sold for light and power; about 69,000 h.p. is used for pulp and paper manufacture, and about 59,000 h.p. is used for the most part in the form of hydraulic power directly applied

Selling a City to Industries, Tourists and Conventions

W. J. DONALD, Ph.D.,
Department of Economics, McMaster University.

In the promotion and administration of a civic and commercial organization such as a Chamber of Commerce, a Board of Trade, City Club, or Civic and Commerce Association or in "Community Advertising," as it is sometimes called, there are four main functions to perform and four main problems to deal with. The first is the function of framing the general policy of the organization and of establishing and co-ordinating the general lines of administration. This function the secretary manager or managing director must perform. The second is the function of business management which should be assigned to a person specially qualified for that kind of work. The third is the function of campaigning and of publicity which calls for a distinct type of ability to deal with its special problems. The fourth is the function of research which requires a broad technical knowledge and a particular type of man.

Of course it may happen that a particular organization may not be able to afford these several persons together with the necessary routine office staff, and must assign all of these functions to one man. This is a misfortune and is the cause of many of the failures not only in this particular kind of work, but in business generally. If I were asked to recommend a scheme of organization I should immediately say "functionalize" rather than "departmentalize."

The difficulty may, however, be overcome to some extent by choosing a board of directors which includes men capable of dealing with each of these problems; business men to form a finance and organization committee advertising men, salesmen and journalists to deal with campaigns, publicity, and advertising; and University and other technical men to advise on and assist in research. All of them should be capable and public spirited enough to help frame a general policy.

The last three of these functions have to do particularly with administration of a citizen's organization and for our present purpose the first is the more important. At another time there may be an opportunity to discuss some of the details of the business management, the research methods, and the publicity methods of industrial and convention bureaus and other civic and commercial organizations.

Prevalence of Community Advertising.

"Selling a City" is a very live question among American and a few Canadian cities. In Eastern Canada, St. John, Sherbrooke, Fredericton, Ottawa and Three Rivers have been particularly active and Toronto is showing signs of life. But it is in the West that systematic and sustained efforts have been made to secure industries and conventions. Calgary, Edmonton, Regina, Saskatoon and the coast cities have carried on effective publicity campaigns for several years. Vancouver and Victoria had considerable success in diverting traffic in their direction to and from the Panama-Pacific Exposition. Winnipeg has for ten years been the great example of what may be accomplished by co-operative and persistent effort. Its Industrial Bureau is known North America over and it would take quite too much space to enumerate its accomplishments and the variety of its activities.

In the United States industrial bureaus, convention bureaus, and publicity bureaus are so common either as independent organizations or as branches of Chambers of Commerce that it would be quite useless to enumerate them. A few of the best include the Industrial Bureau of the Merchants' Association of New York, which was organized by Dr. E. E. Pratt, formerly of New York University, and now director of the Bureau of Foreign and Domestic Commerce at Washington; the Detroit Convention and Publicity Bureau; the Greater Des Moines Committee; the Nashville Industrial Bureau; the Minneapolis Civic and Commerce Association Bureau and similar bureaus at Cleveland and Cincinnati.

Value of Organized Effort to Secure Industries.

Every city advertises just as every person advertises; either consciously or unconsciously. For years Philadelphia couldn't help advertising the fact that it was a "slow town." One city is known to be aggressive. Others are reserved, but this is advertising just as the cautious reservation of the university professor is self-advertising. It is important, however, that a city's efforts to grow should be directed and directed into the right channels. Publicity should be controlled and done with a purpose economically and effectively; and until recently this has never been true of any city.

It is, of course, quite clear that the addition of an industry to a city is almost always an advantage to every merchant. It may indeed for a short time affect the interests of renters adversely by increasing rents, but ultimately conditions will become readjusted. In the long run labor is benefited by increased and more regular employment, for nothing is more difficult than to regularize employment in a city which has a small number of plants and small number of lines of manufacturing and distribution. Everyone will recognize that a growing city is to be preferred to a static community.

One of the benefits of advertising a city is that it builds a reputation that the citizens must try to justify. It has a reflex action that is frequently quite powerful. Des Moines, a rather sleepy little city of 100,000, had not been growing for a decade, but after the Greater Des Moines Committee began its work the city grew rapidly and the whole spirit of the place was changed. It usually happens that instead of directing energies away from the Board of Trade or other organizations it actually increases the number of active citizens. The city is on exhibition or on trial and the public spirit of the citizens rises to meet the emergency.

Industrial bureaus are successful in securing industries. The Nashville Bureau secured 74 new factories in two years and 52 are still living. The Winnipeg Bureau secured 479 in ten years though doubtless some of these would have located in Winnipeg without Bureau encouragement. Dallas, Texas, located 11 manufacturing plants and 25 warehouses and assembling plants in one year.

Value of Conventions.

Conventions too have their advantages, but organized effort to secure them is a new feature of Chamber of Commerce work. While it is not so generally popular as securing factories, nevertheless, it is valuable. It has been estimated that the average delegate spends about \$25 during his stay at a three day convention. When the Shriners were in Seattle in 1915 the bank clearings for one week were \$3,000,000 above the clearings for the week before and the week after. The cost of securing conventions is estimated at 2½ per cent of the money actually spent during their stay. They cannot be had however without well planned effort. The Cincinnati Bureau increased the number of conventions by six times. Buffalo has three times as many as before the Bureau was formed.

The best class of Convention is that of business men. These do not seriously disturb the regular course of the city's life and they bring men who are ever on the alert for opportunities to extend their business. Conventions that ask funds for entertainment should not be encouraged. Money should be spent on getting not on entertaining them. A registration fee should cover all entertainment.

A valuable feature of conventions is their defensive work in correcting mistaken ideas. For instance, this last summer Muskoka hotels expected a large American trade and early in the spring they were heavily booked, but the impression got abroad that Americans needed passports and would be interfered with at the border and as a consequence the hotel trade was very low. This might have been prevented by a convention bureau, and a few conventions of American Associations in Canada would have destroyed the idea. Certainly the Canadian National Exhibition helped to dispel the notion when it was too late. It ought to be added that a city receives valuable publicity in the class and trade publications which serve the convention delegates. Philadelphia was able last summer to disprove the idea that it was a slow town by entertaining the Associated Advertising Clubs of the World in extraordinary fashion, and the convention of the same organization in Toronto in 1914 brought that city to the attention of many people who knew little of it before.

But if discrimination can be used in securing conventions much more can it be used in the securing of industries. Not every industry should be taken. It is a grave question whether an industry that employs women and girls at pauper wages which offers insanitary conditions of work and which in time casts on the community the burden of a pauperized old age should be considered for a moment. Canada does not want to develop that type of industry. Nor should a city try to attract that type of industry that will not be able to survive in the locality without artificial assistance. A city cannot grow on the face of a province like a mushroom. Its roots must run throughout the district and unless the region thrives the city cannot have a healthy growth.

The Self-Dependence of Canada on Her Own Resources

R. O. WYNNE-ROBERTS, C.E.

The subject of the self-dependence of Canada on her own resources is an important one, but to advance new thought on a topic such as this, is not easy, because Canada's industrial independence has been dealt with by able authorities from many different view-points.

Canada, however, cannot be independent of other countries in the broad meaning of the term, but she can be made more self-dependent, if her resources are adequately conserved. Her resources are many and for the present purposes they may be classified as her people, her raw materials and her industries.

Canada has a population of slightly over seven millions of whom about 3,300,000 live in the towns and cities and about 3,900,000 live in the country. The total area of land is about 2,306 million acres. It is, therefore, evident that there is ample room for more people, especially when we remember that nearly one-half of the population dwell in urban districts, and the rural residents have an average of about 600 acres to every man, woman and child. The rural population at present is small in comparison with the area of land—it is but a sprinkling on a vast ocean—and yet, even now, Canada produces grain, etc., in enormous quantities. What will the produce be when the rural population is twice as great?

Make the Social Life of the Farm Better.

It is, of course, highly desirable to induce a great influx of people to settle in Canada and dwell upon the land which awaits their energy, skill and capital, but there is the equally desirable condition, namely they should be made to feel contented and to appreciate the opportunity of becoming worthy citizens in full enjoyment of all our free institutions. Their health and anemity should be carefully preserved, for health is one of the greatest assets and anemity are excellent salve for persevering efforts. The tillers of the land will continue at their work so long as they find it congenial and profitable, but experience indicates that when isolation, toil and perseverance do not meet with a reasonable measure of reward, the farmers drift into the cities, where the alleviations of society are attractive. The state can do much to promote the welfare of the pioneer farmer, and is doing so, but our individual attitude towards the new people ought to be such that they are assimilated by our commonwealth and not segregated into a separate class. Self dependence of Canada will be in proportion to the successful assimilation of the new people. It was recently stated that forty per cent of the people in Canada are of non-British descent and we were told that conscription would result in something worse than discord. Is it because the forty per cent alluded to are unassimilated, and are left to form a separate section of the community, with its unfortunate results, instead of extending to them a wholehearted encouragement to unite themselves with the the sixty per cent and thereby have a powerful fusion which shall not be rent asunder by factious and racial antipathies?

More Scientific Training Required.

Canada needs more people, has invited them to make their homes here, to cast their lot among us and participate in our national prosperity, and yet at a moment of great crisis, a large section of the inhabitants are said to constitute a source of internal weakness instead of strength. Mr. J. S. Woodsworth has for many years been directing public attention to this problem and without doubt it is an important one. We want no colonies or sections within the Dominion. We want communities where the best and finest attributes of human character and national traditional features worthy of preservation are fostered and the people are made to feel they are an integral part of and owe a duty to the state. Canada's resources in her people can be developed in many ways—educationally, socially, technically, financially, spiritually—and each of these is capable of increasing the power of self dependence. Furthermore, the state through the Universities and Colleges, Collegiates and Schools, Institutions and Societies can promote the development of human engineering, draw out from the best they have, and utilize the talent they possess, for the good of the country. The war has revealed a great need among us for some agency to infuse new ideas, to create new impulses, to establish new ways whereby we can do more and do it better. Technical schools, agricultural colleges, demonstration farms, business schools will

soon have each their part to play to promote this. One of Canada's resources in man-power is that possessed in her universities, colleges and schools. The call of the hour is to carry on our enterprises in a scientific manner, to avail ourselves of scientific assistance, so that production may be better and cheaper. Canada's position as a nation in competition with others, will depend upon the extent her people embrace the service of those best qualified to extract from nature's store the valuable gifts concealed therein. Many of the soldiers returning from the war owing to illness, injury or other disabilities, have to spend many weeks at hospitals, and although convalescent enough to study, it is gratifying that the government will afford them opportunities for vocational training. The plan may, however, be extended for amongst the men there are some who are adapted by education and experience to become valuable in connection with research work of different kinds. Would it be possible for the universities and colleges to hold extension classes in various branches of science for those who are eager to qualify and thus give them an opportunity of using their time to better advantage not only to themselves but to the country at large?

Utilize Our Resources.

Canada possesses a great variety of raw materials and as the country is more fully explored, new materials and resources will be discovered. It would be unwise to predicate on the absence of certain minerals, because there are instances where minerals have been found where authorities stated none existed. We have several classes of material which are now awaiting to be converted into useful and profitable commodities. We have clays of many qualities and suitable for different wares—from porcelain to common brick—and yet we imported \$3,300,000 of bricks, tiles, clays, etc., in 1914. We have local marble, but import others, we burn over one million tons of straws within a radius of one hundred miles of Regina and import paper and boards. We grow flax, export some of the seed and import large quantities of oils, varnishes and paints. We burn wood-waste instead of turning it to good account. We manufacture coke in beehive ovens, instead of recovery ovens, allowing the valuable gases to escape, the nitrogen to be lost, and the smoke to be discharged into the atmosphere, and at the same time import some of the by-products which could be recovered here. Fortunately we are moving towards better conditions, and to make Canada more self-dependent on her own resources we need to make better use of what we have. We must also prepare for the future. Lumber will some day be exhausted unless we reforest the depleted areas. The land will gradually lose its productive vitality unless we restore what was extracted, by a greater use of fertilizers. The stock of cattle is being seriously reduced, world-wide, and here we have the opportunity of replenishing the same and to establish in Canada a great stock-raising industry and incidentally furnish many raw materials which we now import. We imported leather goods in 1914 to the value of \$8,500,000 and wool (woolen goods) \$31,500,000, some of which might be produced in Canada. A portion of our vegetables and fruits could be dessicated. Farming must be the great and primary industry of Canada. It must be the mother industry which shall give birth to many subsidiary ones and each of these will grow in importance, giving employment to a large number of people, directly and indirectly. Canada's resources in fish is great, but according to government reports, they are in the process of exhaustion. The governments, however, are doing good work instituting investigations, initiating improved methods of hatching, and in different ways encouraging conservation.

In closing these observations, the writer desires to express that the enormous results of the war in our national affairs has revealed to us, as nothing else could have done, that Canada's self-dependence on her own resources is of immense importance. Optimism, co-operation and aggressive action will promote industrial Canada and make her self-dependent to a degree which no one can predict and place her in a strong position among the countries of allied nations.

Real Canadian Development

By C. J. YORATH, A.M., Inst., C.E., A.M.C.Sc., C.E.
City Commissioner, Saskatoon.

"Cities Models of Good Government."

"The Country Run so as to Command the Respect of all the Powers."

The above two principles are essential to the real development of a country and without them no country, in the future, will be able to successfully compete in the commercial war which will inevitably follow the declaration of peace. The science of political economy has during the period of the great war, made rapid strides and upon its proper application will depend the success of any nation either in times of peace or war.

It is against the best interests of any country to have

- (a) A heavy burden of taxation through the wasteful expenditure of public monies;
- (b) A high cost of living;
- (c) A high percentage of unemployment;
- (d) An uneven distribution of employment;
- (e) An adverse balance of annual production and consumption;
- (f) Its natural resources exploited by other countries.

Country's Debt Greatly Increased.

There is a possibility that the Dominion debt in respect to the war will reach \$1,000,000,000, with annual interest charges amounting to \$50,000,000, and while an adverse trade balance of \$171,748,000 in 1914 has been converted into a favorable balance in 1916 of \$367,000,000, there is a possibility that when the exportation of munitions which since the outbreak of war is valued at over \$1,000,000,000, ceases, that this balance will again be reversed.

When the significance of these figures are fully realized it will be seen how important it is to organize now to obtain a real Canadian development after the war.

Wasteful Expenditure of Public Money Must Cease.

Before the outbreak of war and since, huge sums of public money have been squandered through inexperienced and careless expenditures due principally to the apathy shown by citizens in Local, Provincial and Dominion Governments.

It is clear that the war has revolutionized all lines of thought. The law of "cause and effect" has been thoroughly investigated, resulting in the abolition of certain traditional practices which have been throttling the commercial advancement of the British Empire. Canadians, therefore, must be prepared to take their part in the future development of the country and the Empire. The people must see that the governments of the country and the Provinces are not allowed to fall to pieces while politicians charge and counter-charge, investigate and counter-investigate, the wrong doings of one party or the other.

The whole brain power, energies and patriotism of our rulers must be entirely concentrated upon perfecting our system of government so that the public services will be conducted in the most economical and efficient manner and the very heavy burden of taxation as the result of the war, not increased to any appreciable extent in the future.

Local Government Responsible for Building up Country.
Before the outbreak of war the debt of Canadian Municipalities amounted to \$516,979,614, which slightly exceeded the combined debts of the Dominion and Provincial Governments; the fire loss was \$14,752,117 or more than sufficient to meet the interest charges on the Dominion debt, and the average mortality of children under one year was 25,000.

It will be seen from the above that the Municipalities are not only responsible for the greater part of the country's debt, but that the duty also devolves upon them to prevent loss of property by fire, and more important still they are responsible for the real wealth of the nation's child life.

The proper development of the child depends upon its environment, education, sterling character and good health; the success of a nation depends upon the degree of success which is attained in these essentials and this great responsibility largely, if not entirely, depends upon the local governing bodies.

In an article such as this it is impossible to discuss the method or methods of civic government which are responsible for such vital matters and which according to their degree of efficiency will stunt and retard or expand and increase the real development of our country.

In the large majority of cases the method of civic government at present in vogue will and is bringing about the first result.

While civic government must recognize popular control, there is no reason why its administration should not be conducted by men specially trained and experienced in civic questions, in the same way as a successful business is administered by a man experienced in the particular class of business.

How often does it occur that public bodies carry out large programmes of work, when the supply of labor is short, when money is dear and when commercial enterprise is more than able to control labor conditions. It is this lack of organization which increases the cost of living, taxation, unemployment and an uneven distribution of employment.

The construction of public works is often actuated by expediency instead of necessity and owing to there being no central expert advisory authority and through the lack of standardized and comparative statistical information the works of Local Authorities are often obsolete before they are completed.

Public Works the Balance for Uneven Trade Conditions.

Public works should be controlled and governed so that they would act in the same way as a governor on a steam engine, by bringing the machinery of social conditions to proper balance when thrown out of smooth running by the uneven load of trade conditions. By this means the curve of employment and unemployment will be more even and the cost of living will be maintained at a more regular level.

Natural Resources Exploited by Foreigners.

Another vital question affecting the real development of Canada which should be thoroughly investigated, is the ownership of the developed natural resources. In many instances metal is being shipped from Canada to the United States and returned in competitive imported "manufactures of metals."

According to a Chart which has been prepared for the Dominion Royal Commission by Mr. C. H. Wickes, British Trade Commissioner to Canada and Newfoundland, 70.2 per cent of the imports of competitive merchandise consists of the two trades "manufactures of metals" and "dry goods."

The development of the natural resources of this great country has barely begun and now is the time to organize so that in future the great mineral wealth shall, in the first instance, be developed for the benefit of Canada and after that for the benefit of the Great British Empire.

A new era is dawning; the appeal made a few years ago to the people of Great Britain by King George to "Wake up" is at last being answered. Old machinery is being scrapped; old and obsolete business methods are being discarded; new factories are being planned and great preparations are now being made in a way and with an energy which first made Great Britain's commerce supreme throughout the world. The old British lion is indeed aroused and if the same spirit and the same ends are to be obtained throughout the Empire, no part of that Empire can afford to be asleep, to be deficient in organization or to be careless of its development if it desires to be in the forefront of the race.

In order to obtain real Canadian Development for Canada as a whole and not one Province in particular it is necessary to eliminate as far as possible the lack of uniformity which exists through the varying legislation passed by the Provincial Governments.

It is true that we are a very much over-governed people, having no less than 10 governments to rule and govern about 8,000,000 people, or one government for every 800,000 people, compared with Great Britain's one government to govern 48,000,000 people, besides taking care of Imperial and Foreign questions. Yet even in these days of great changes when deeply rooted principles and traditions are discarded it perhaps would be too great a reform to suggest the abolition of some, if not all of the Provincial Governments.

However, the establishment of some central controlling or advisory authority in commerce and municipal government appears to be not only necessary but essential in order to obtain the uniform economical and real development of Canada.

The Provinces of Nova Scotia, New Brunswick, and Prince Edward Island

In the later development of Canada the three Maritime Provinces of Nova Scotia, New Brunswick and Prince Edward Island have been overlooked by the immigration authorities, so that their growth, because of the lack of human material, has been somewhat slow. Possibly this oversight was because of the innate modesty of the people, who did not care to shout the wonders of their resources from the housetops, or through the more modern methods of advertising. Whatever may be the reasons, the fact is that one of the richest parts of Canada—in natural resources and fertility of soil; in geographical situation and ocean ports—is actually poor in comparison with other parts of the Dominion; so much so that many of its sons and daughters have migrated for the lack of opportunity to expand. If it were not for the great iron and coal industries, the showing would be poor indeed. This is hard to understand, particularly when it is taken into consideration that most of the inhabitants are of Scotch descent, and supposedly with all the progressive and pugnacious spirit of their ancestors. Possibly the very clannish spirit of Scotland is accentuated in the people of the Maritime Provinces to the extent of a little too much suspicion of strangers—in business. Their hospitality is well known, but this confuses the mind of the man from other parts who would do business.

There is absolutely no reason why the Maritime Provinces should not be busy hives of industry, with at least twice the present population, within a reasonable time, but if the public men are wise they will see to it that the three provinces do their own advertising and booming, and not leave it to the immigration authorities. In this respect the municipal councils can set a good example, by showing

to the world what their respective districts have to offer in the way of opportunity for capital and men and women. In this they would but be following the lead of many of the municipalities of Great Britain that have started campaigns to secure industries.

A campaign to encourage shipbuilding has already been started under Mr. Norcross of the Canada Steamship Lines, who, as the new Director of Shipping, held contracts on behalf of the Imperial authorities to the amount of sixty million dollars. Surely this is an opportunity for the Maritime Provinces to regain that reputation they once had for shipbuilding — but which this time would be for steel and steam instead of wood and sail. Col. Cantley has stated quite clearly that given the orders Nova Scotia was quite capable because of its steel and natural harbours, to build any tonnage. Then why not go after the orders?

In the following pages we have attempted to show something of the great resources of the Maritime Provinces. Of course in a work of this nature we could only deal with each province in a very broad way, but we believe and hope sufficiently to convince the citizens and strangers of the many splendid opportunities lying, as it were, right at their feet.

The Maritime Provinces lie nearer to Europe than any other part of this continent, and it will be strange indeed if in the general development of Canada, which will surely take place immediately the war is over, Nova Scotia, New Brunswick and Prince Edward Island do not share in that prosperity which naturally follows sane development, but it is largely up to the citizens and communities to make a start.

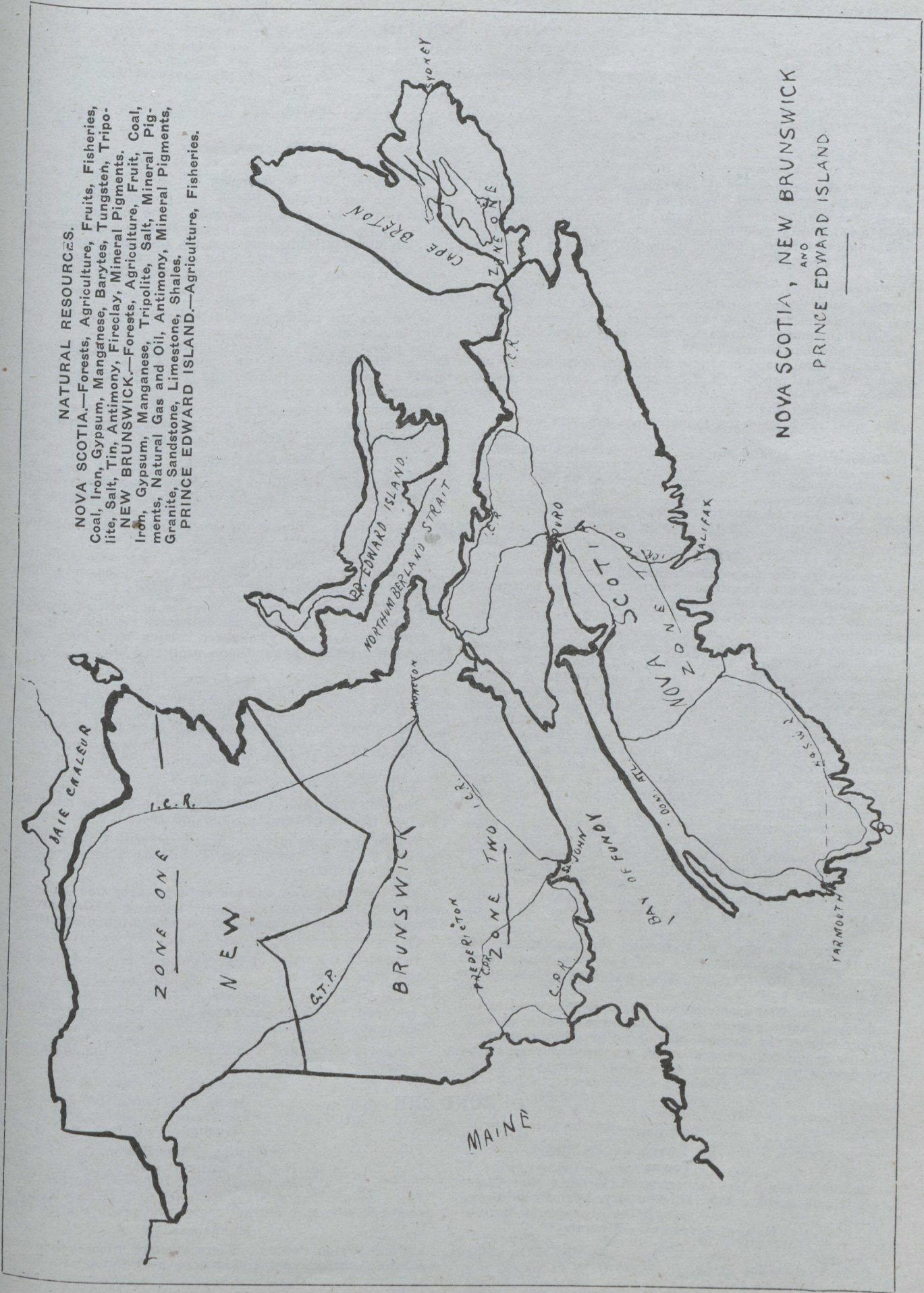
NATURAL RESOURCES.

NOVA SCOTIA.—Forests, Agriculture, Fruits, Fisheries, Coal, Iron, Gypsum, Manganese, Barytes, Tungsten, Tripolite, Salt, Tin, Antimony, Fireclay, Mineral Pigments.

NEW BRUNSWICK.—Forests, Agriculture, Fruit, Coal, Iron, Gypsum, Manganese, Tripolite, Salt, Mineral Pigments, Natural Gas and Oil, Antimony, Mineral Pigments, Granite, Sandstone, Limestone, Shales.

PRINCE EDWARD ISLAND.—Agriculture, Fisheries.

NOVA SCOTIA, NEW BRUNSWICK AND PRINCE EDWARD ISLAND



Nova Scotia

Population.

Rural	306,210
Urban	186,128
	492,338

Like New Brunswick, this Province has been treated as a whole, except with regard to minerals and manufactures. For the purpose of minerals and manufactures, it has been divided into Two Zones. Zone No. One includes the whole of Cape Breton Island. Zone No. Two, the remainder of the Province.

Forests.

The chief lumber producing counties of the province are all included in Zone Two. They are Queen's, Shelburne, Lunenburg, Yarmouth, Cumberland, Annapolis, Colchester and Guysborough.

The principal wood produced is spruce, forming 62.8 per cent of the total production of the province. Hemlock comes next with 18 per cent. The other principal species are fir, pine, birch, oak and maple.

The total production for the province for 1915 was:

	Value.
Lumber, M. ft. B.M.	294,475 \$4,366,165
Lath, thousand	59,921 128,785
Shingles, thousand	30,733 52,053
Pulpwood, cords	24,180 124,032

Of the pulpwood produced in the province 86.3 per cent was manufactured, and the balance exported raw.

Water Powers.

Agriculture the basic industry of all civilization and the chief asset of this maritime country merits the best study and attention that can be given to it. With special reference to Nova Scotia, it is well to speculate on the transformation that might be worked in such already far-famed districts as the Annapolis and Cornwallis valleys, by flooding them with cheap light and power. Some idea of the results obtainable is given by the appearance of certain section of the Maritime Provinces has like possibilities, tario, where the combination of excellent soil and climate, with an abundant supply of electricity for transportation, domestic and field use, has turned whole blocks of country into veritable gardens. It would seem that a certain section of the Maritime Provinces have like possibilities, where small sites are available close at hand, thereby eliminating expensive transforming apparatus and long transmission lines.

Existing developments are mainly of two types: First, those based on the timber resources of the country, such as saw mills, pulp and paper mills; second, those developed and used by small municipalities for local light and small motor loads. In a few cases, too, small water powers are used for the manufacturing of pulp and paper. In this field particularly, many excellent opportunities for the use of water power are available.

The development of small powers for local municipalities is also a promising field, while in some cases, larger powers, near the sea-coast offer exceptional opportunities for industrial activity.

One of the chief assets of the Maritime Provinces in undeveloped water powers lies in the large number of small sites available for domestic use or for small municipalities. One or more such sites exist on practically every stream throughout the district.

Counties.

Cape Breton, Victoria, Inverness, Richmond.

Towns

Dominion, Glace Bay, Inverness, Louisburg, New Waterford, North Sydney, Port Hawkesbury, Port Hood, Sydney Mines.

Natural Resources.—Minerals.

Coal.

Cape Breton, Inverness.

Dairying.

The Province of Nova Scotia has proven well adapted to the various branches of dairying. The increase in this industry since 1910 has been 370 per cent, but as the mining and manufacturing towns of the province import annually many thousands of dollars worth of dairy products, there is room for a great expansion along these lines.

Fruit.

Apples are the most important export crop. Plums and cherries are raised in large quantities.

The principal apple growing counties of the province are Hants, King's, Annapolis and parts of Digby, Yarmouth, Queen's, Lunenburg, Cumberland and Pictou, more particularly the first three.

The province being nearer the European markets than any other part of the Continent is in a specially advantageous position for marketing its crops.

Livestock.

The cool moist climate of Nova Scotia is specially adapted to the production of fodder of all kinds and rich pasturage. This fact, with the comparative absence of most kinds of obnoxious flies tends to the thriftiness of all kinds of livestock.

The number of sheep in the year 1916 was estimated at 226,406, and the annual wool clip about 1,000,000 pounds. Most of the sheep are kept in small flocks.

Statistics go to show that there is a profit of from 34 to 50 per cent on the original outlay in sheep raising.

There is no reason why sheep raising on a large scale should not realize a handsome profit.

Root Crops.

In 1915, 4,289,220 bushels of potatoes were raised and 6-560,180 bushels of turnips, mangels and carrots.

The potatoes grown in Nova Scotia show by test a higher quality than any others raised in Canada.

Turnips often average 800 bushels to the acre.

Fisheries.

The fisheries of Nova Scotia are by far the most important of any of the Canadian provinces.

The total capital invested in the fisheries was estimated in 1915 to be \$7,568,821, with about 30,000 men employed directly and indirectly.

The leading fish of the sea fisheries are: Cod, Lobsters, Mackerel, Herring and Haddock. Those of the Inland fisheries are: Salmon, Smelts, Trout and large quantities of Eels.

In 1914-15 the value of the exports of fish and fish products was \$19,687,086.

Ninety per cent of the cured products of the fisheries is shipped to Spain and other parts of Europe and the West Indies.

These fisheries are a splendid field for the investment of capital.

ZONE ONE.

Gypsum.

Inverness Co., at Cheticamp. Cape Breton, Co., along the Coast, in the interior and along the shores of Bras d'Or. Victoria, Co., at McKinnon Harbor, Baddeck, and Ste. Anne. There are six plants in the Counties of Inverness and Victoria, two of which did not report and production in 1915.

Manganese.

Cape Breton County. There are two mines being worked, the Isabella and the Glenmore, near Enon.

NOVA SCOTIA—(Contd.)**Barytes.**

This is used as a filler for white lead and other paints, and as vehicle for color and for putty making. Mines are located at Scotsville and Lake Ainslie in Inverness County. The production in 1915 was 750 tons.

Tungsten.

Tungsten has been found in Inverness County at S. E. Margaree.

Tripolite.

There are important deposits of Tripolite in Inverness, Victoria and Cape Breton Counties, but these have not been operated.

Salt Springs.

There are Salt Springs in Inverness County, near Whycomagh. No attempt has been made to use them commercially.

Counties.

Guysborough, Antigonish, Pictou, Halifax, Colchester, Cumberland, Hants, Lunenburg, Kings, Queens, Annapolis, Yarmouth, Digby, Shelburne.

Cities and Towns.

Halifax, Amherst, Annapolis Royal, Antigonish, Bridgetown, Bridgewater, Canso, Dartmouth, Digby, Hantsport, Kentville Liverpool, Lockeport, Lunenburg, Middleton, New Glasgow, Oxford, Parsboro, Pictou, Shelburne, Springhill, Stellarton, Stewiacke, Trenton, Truro, Wedgeport, Westville, Windsor, Wolfville, Yarmouth.

Natural Resources.—Minerals.**Coal.**

Pictou, Cumberland, Colchester. There are nineteen producing mines in these counties. The coal mined here is bituminous.

Iron.

Annapolis, Colchester. There are three producing mines in these counties.

Parrsboro, on Minas Basis, is suggested as a favorable location for an iron and steel plant of large size. Ores could be conveniently brought to Parrsboro from the whole western Cobequid range from the Torbrook and Clements-Port mines in Annapolis county, and from Colchester and Hants Counties. Limestone for flux could be obtained from the vicinity of Windsor and Anchorite from the Londonderry range. Coal from Springhill would have a rail haul of only 27 miles down grade. The distance by rail from Torbrook iron mines to Port Wade, the shipping point, is 42½ miles, and from Port Wade to Parrsboro by water 77 miles. Parrsboro is distant from St. John, N.B., about 82 miles.

Gypsum.

Cumberland, Hants. There are eleven producing plants in these counties. A very large part of the crude material is exported to the United States for manufacture.

Antimony.

Hants (near West Gore).

Barytes.

Colchester (at Five Islands and Stewiacke).

Mineral Pigments and Ochres.

Colchester.

Manganese.

Hants, Colchester, Lunenburg. The only active operations now being carried on are at New Ross in Lunenburg Co.

Tungsten.

Halifax (Moose River district, Malaga Gold Mining District and Perry Lake), Lunenburg (at New Ross) Mines closed since 1912.

Tin.

Ore has been found in veins in Granite at New Ross, Lunenburg County, but no attempt has been made to produce commercially.

Manufactures.

There are 151 factories in this Zone, distributed among the following industries:

Aerated and mineral waters 8, Bread, Biscuits and Confectionery 4, Brick Tile and Pottery 4 Carriages and Wagons 2, Coke 1, Drugs 1, Electric Light and Power 3, Fish (preserved) 49, Foundry and Machine Shop Products 4, Flour and Grist Mill Products 2, Boats and Canoes 2, Iron and Steel Products 2, Lime 1, Log Products 43, Lumber Products 14, Liquors (malt) 1, Printing, Publishing and Book-binding 3, Plaster 1, Smelting 2, Wool Carding and Fulling 2, Wool Pulling 1, Woolen Goods 1, Roofing 1.

These factories employ 5,798 persons, pay out in wages \$2,761,328 pay for material \$3,786,319, and have an output of \$12,888,682. The aggregate capital employed is \$27,-679,517.

Deducting the amount paid in salaries and wages and the cost of material from the amount of the total output there remains a gross profit of \$6,341,035, equal to 22.90 per cent on the capital employed.

ZONE TWO.**Salt.**

Antigonish, Cumberland, Hants. Salt springs have been noted from time to time in these Counties, but no attempt has been made to turn them to commercial use.

Tripolite. (Infusorial Earth.)

Cumberland, Colchester. Plants are being operated at Bass River, Cumberland County, and at Silica Lake and Castlereagh in Colchester County.

Fireclay.

Large beds of fire clay occur in connection with the coal seams throughout the province.

Manufactures.

There are 1,329 factories in this Zone, distributed among the following industries:

Aerated and mineral waters 9, Axes and tools 2, Abrasive goods 1, Agricultural implements 1, Automobile repairs and accessories 1, Butter and cheese 16, Bread, biscuits and confectionery 10, Brick tile and pottery 11, Boats and canoes 29, Awnings, tents and sails 1, Boilers and engine 8, Baking powder and flavoring extracts 1, Boots and shoes 8, Blacksmithing 1, Carriages and waggons 15, Carriage and wagon materials 1, Clothing (men's custom) 8, Clothing (men's factory) 4, Clothing (women's custom) 4, Cooperage 29, Cottons 3, Cut stone 1, Cocoa and chocolate 1, Cars and car works 2, Coffee and spices 1, Coffins and caskets 2, Cordage 1, Condensed milk 2, Cardboard 1, Dyeing and cleaning 6, Electric light and power 15, Evaporated fruit and vegetables 1, Electrical apparatus 1, Fish (preserved) 375, Foundry and machine shop products 31, Flour and grist mill products 33, Fruit and vegetable canning 1, Fertilizers 2, Glass 1, Glass (stained, cut and ornamental) 1, Glue 2, Furniture and upholstered goods 5, House building 8, Hosiery and knit goods 2, Hammocks 1, Hats, caps and furs 2, Iron and steel bridges 1, Iron and steel products 3, Inks 1, Jewellery and repairs 1, Log products 429, Lumber products 56, Liquors (malt) 3, Leather (tanned, curried and finished) 8, Lock and gunsmithing 1, Lasts and pegs 1, Monuments and tombstones 7, Masts and spars 3, Mattresses and spring beds 2, Plumbing and tinsmithing 8, Printing, publishing and bookbinding 36, Patent medicines 1, Oils 1, Patterns 1, Paints and varnishes 1, Plaster 1, Pumps and windmills 1, Paper boxes and bags 1, Rubber clothing 6, Rubber and elastic goods 1, Roofing 1, Slaughtering and meat packing 4, Ships and ship repairs 18, Sea grass 2, Spray motors 1, Stationery goods 2, Sugar (refined) 2, Shooks (box) 2, Tobacco 4, Vinegar and pickles 4, Wood pulp 6, Wooden boxes 23, Woolen goods 6, wood-working and turning 4, Wool pulling 1, Wool carding and fulling 1.

These industries employ 22,997 persons, pay out in salary and wages \$7,867,629, pay for material \$22,271,996 and have an annual output of \$39,817,502. The aggregate capital employed amounts to \$51,915,824.

Deducting the amount paid in salaries and wages and the cost of material from the total output, there remains a gross profit of \$9,677,877, equal to 18.64 per cent on the capital employed.

New Brunswick

Population.	
Rural	252,342
Urban	99,547
<hr/>	
351,889	

This province has been treated as being divided into Two Zones as above for the purposes of Mineral Resources and Manufactures.

For all other purposes the Province has been taken as a whole.

Forests.

New Brunswick's principal wood is spruce. The others are Cedar, Fir, Tamarack, Maple, Beech, Birch, Ash, Poplar and Hemlock.

The total lumber production for the province for 1915 was:

	Quantities	Values
Lumber, M. ft. B. M.	633,518	\$9,902,202
Lath, thousand	288,951	693,795
Shingles, thousand	458,987	917,208
Pulpwood, cords	235,738	732,521

Of the lumber produced, spruce represented 82 per cent. Of the pulpwood produced only 115,842 cords, or 49.1 per cent were manufactured in the province, the balance being exported, in a raw state.

The interior of New Brunswick is one vast forest, with timber specially adapted for pulp and paper making purposes. Large areas could no doubt be made to produce pulpwood perpetually by the application of approved forestry methods.

Many excellent water-powers are available for the operation of mills throughout the district.

Agriculture.

Although the soil of New Brunswick does not appear to be as well suited to grain raising as that of the Western provinces, the conditions are ideal for hay and root crops and fodder of all kinds.

Hay crops yielded from 1 to 2½ tons per acre.

Potatoes, yielded 203.4 bushels per acre.

Turnips, yielded 490.1 bushels per acre.

Alfalfa has been known to yield 5 tons to the acre.

Livestock.—Dairying.

The Province of New Brunswick is ideal for raising livestock and for dairy purposes. There is excellent pasturage during the summer, owing to its abundant rain fall and freedom from droughts. The province is largely supplied with beef from Ontario and Western Canada, as the local supply is never equal to the demand. In 1916 there were in the province 100,221 milch cows and 92,223 other cattle.

Butter.

In 1915, there were 20 creameries in operation in the province, which produced 776,416 lbs. of butter, valued at \$231,837.

ZONE ONE.

Counties.

Gloucester, Kent, Northumberland, Victoria Madawaska.

Towns.

Bathurst, Campbellton, Chatham, Dalhousie, Edmundston, Grand Falls, Newcastle.

Natural Resources.—Minerals.

Gypsum.

Victoria. There are two plants at Plaster Rock, only one of which reported any production during 1915.

Grindstones.

Gloucester, Northumberland. There are three quarries situated at Clifton, New Bandon and Stonehaven in Gloucester Co., and one at Quarryville in Northumberland Co. Only one of these reported any production in 1915.

Iron.

Gloucester. In the Austin Brook District in this County great masses of iron are believed to exist. The only producing mine is the Drummond on the Nepisquit River, which is equipped to produce 1,000 tons per day.

Although New Brunswick has coal, iron and limestone the three raw materials of iron manufacture, there are no blast furnaces in the province.

Mineral Pigments.

Chaplin's Island, Northumberland Co.

Sandstone.

Kent, Northumberland, Gloucester, Kent Co., one producing quarry at Notre Dame; in Northumberland Co.

Cheese.

In the same year there were 25 cheese factories in operation, producing 1,165,651 lbs. of cheese, valued at \$168,086.

Horses.

In spite of the fact that the province is well adapted to horse raising, not nearly enough are raised to supply the local demand. In 1916 there were 65,169 horses in the province exclusive of towns and cities.

Sheep.

The hills and well watered pastures grow various kinds of short sweet grass and white clover which are specially adapted for sheep. New Brunswick lamb is much sought after in the United States. There is also an excellent market for wool. The number of sheep in the province in 1916 was 105,997.

Fruit.

All the small fruits and a large variety of apples and plums may be successfully grown.

New Brunswick apples are widely known and famous for their color and beauty of appearance. Apples are indigenous to the province. In many places wild apple trees line the roads for miles.

Fisheries.

This is one of the most important industries in the province employing 22,034 persons. The value of the fisheries in 1914-15 was \$4,940,083. The fishing equipment for the sea fisheries was valued at \$3,655,821, and for the inland fisheries \$109,999.

The value of the principal kinds of fish caught was:

Salmon	\$243,315
Smelts	391,470
Sardines	895,755
Lobsters	438,650
Herring	419,983
Cod	390,607
Clams	69,197
Oysters	75,650
Mackerel	208,999

Paint in New Brunswick.

Experiments have shown that fine paints can be made from the stibnite deposits of Prince William, the chalcocite deposits at Dorchester, in Westmoreland County, and Manganite at Mount Jordon in King's County, the bog manganese at Mechanic's settlement in Albert County and the ferruginous clay of Chaplin's Island in Northumberland County. It is believed that large quantities of such pigments are available in various parts of the province, furnishing materials for an important paint industry.

Water Powers.

(Developed to date about 13,000 h.p.)

three at Quarryville, Cassilis and French Fort; in Gloucester, one at Stonehaven.

Salt.

Victoria. On the Tobique River.

Manganese.

Kent. There is one plant in operation at Adamsville.

Manufactures.

The manufacturing industries in this Zone consist of the following:

Aerated and mineral waters 1, Butter and cheese 11, Brick, tile and pottery 2, Boats and canoes 2, Blacksmithing 1, Bark extract 1, Carriages and waggons 3, Clothing (men's custom) 5, Car repairs 1, Coffins and caskets 1, Electric light and power 2, Fish (preserved) 199, Foundry and machine shop products 3, Flour and grist mill products 22, House-building 1, Grindstones and pulpstones 3, Log products 167, Lumber products 10, Lime 1, Paper 1, Plumbing and tinsmithing 2, Printing, publishing and book-binding 7, Shooks (Box) 1, Woodpulp 2, Wooden boxes 2, Woodworking and turning 1.

These 451 factories have an aggregate capital of \$12,157,464, employ 2,425 persons pay out in salaries and wages \$2,009,702, pay for material \$4,944,201, and have an output of \$8,865,814. Deducting the amount paid in wages and salaries and the cost of material from the value of the output, it will be seen that there is a gross profit of \$1,911,911, or 15.72 per cent on the capital employed.

ZONE TWO.

NEW BRUNSWICK (Continued).

Counties.

Carleton, Charlotte, King's, Albert, St. John, Sunbury, Queen's, Westmoreland, York.

Cities.

Fredericton, St. Johns and Moncton.

Towns.

St. Stephen, Milltown, St. Andrews, St. George, Sussex, Marysville, Sackville, Shediac, Sunny Brae, Woodstock.

Natural Resources.—Minerals.

Coal.

Sunbury, Queen's. Grand Lake District in these Counties, area about 100 square miles. Coal, bituminous, similar to Nova Scotia coals. Transportation is furnished over Fredericton and Grand Lake Railway to Fredericton. Of the eleven mines operating in this district, only three reported shipments for 1915.

Limestone.

Charlotte, King's, Albert, Carleton, St. John. The finest is in St. John Co.

Antimony.

York. In Prince William Parish, the Canadian Antimony Co. have a plant.

Gypsum.

Albert, Westmorland. Principal deposits near Hillsboro, in Albert Co., where there are four plants working, and near Petitcodiac, in Westmoreland Co.

Manganese.

King's, St. John, Albert. Deposits at Markhamville and Jordon Mountain in King's County; at Ouacco Head in St. John's Co. and at Shepody Mountain and Dawson Settlement in Albert Co. These are not being worked.

Granite.

Charlotte, Queen's. At St. George and Bocaboc in Charlotte Co. and at Spoon Island and Hampstead in Queen's Co., there are seven plants in operation.

Sandstone.

Westmorland. There are three plants at Shediac, one at Sackville, one at Beaumont, and one at Woodpoint, operating these quarries.

Shale.

Sunbury, Queen. Overlying the coal measures in the Grand Lake District, the shale, which has to be removed in mining the coal is suitable for the manufacture of high grade facing, brick, sewer pipe, mantels and other vitrified products. At present this is a waste product.

Mineral Pigments.

Large quantities exist in various parts of the province, furnishing materials for an important paint industry.

Prince William, in York Co.; Dorchester, in Westmoreland Co.; Mount Jordon in King's Co.; Mechanic's Settlement in Albert Co., are some of the most important locations.

Natural Gas and Oil.

In Albert County, 11 miles from Moncton and the adjoining part of Westmoreland County, there is an extensive gas field, petroleum being pumped in small quantities. Extensive oil bearing shales exist in these two counties. It is believed that a plant having a capacity for treating 2,000

tons of the oil bearing shale per day would produce approximately 80,000 gallons of crude oil daily. The oil is of good quality.

There is one concern operating in Albert Co. in connection with these shales, but no production was reported for 1915.

In the Stoney Creek District of Albert County the New Brunswick Gas and Oilfields, Limited, had 22 Natural Gas wells producing on the 31st December, 1915.

Salt.

Kings Co. Springs are known to exist in the vicinity of Sussex and at Saltspring Brook. The New Brunswick Salt Works have a well at Plumweseep.

Grindstones.

At Woodpoint and Beaumont, in Westmoreland Co., quarries are being worked.

Tripolite.

St. Johns, Kings. There is one concern in operation at Fitzgerald Lake, in St. John's County.

Manufactures.

The manufacturing industries in this Zone consist of the following:

Aerated and mineral waters 4, Axes and tools 3, Agricultural implements 1, Butter and cheese 31, Bread, biscuits and confectionery 17, Brick, tile and pottery 5, Boats and canoes 7, Boilers and engines 1, Baking powder and flavoring extracts 1, Boots and shoes 7, Blacksmithing 1, Brooms and brushes 1, Carriages and waggons 19, Carriage and waggon materials 1, Clothing (men's custom) 26, Clothing (men's factory) 4, Clothing (women's) custom 19, Cooperage 8, Car repairs 5, Cottons 4, Coffees and spices 2, Corks 1, Cement blocks and tiles 3, Dyeing and cleaning 4, Electric light and power 10, Elevators 1, Fish (preserved) 127, Foundry and machine shop products 19, Flour and grist mill products 51, Fertilizers 1, Glass (stained cut and ornamental) 1, Gas, lighting and heating 1, Grindstones and pulpstones 1, Gas machines 2, Glue 1, House-building 5, Barness and saddlery 4, Iron and steel products 6, Interior decorations 1, Log products 167, Lumber products 24, Liquors (malt) 2, Leather (tanned, curried and finished) 4, Lime 1, Monuments and tombstones 11, Mattresses and spring beds 4, Mats and rugs 1, Mirrors and plate glass 1, Matches 1, Optical goods 1, Plumbing and tinsmithing 9, Printing, publishing and bookbinding 25, Patent medicines 2, Paints and varnishes 1, Plaster 1, Paper boxes and bags 4, Roofing 1, Slaughtering and meat packing 6, Ships and ship repairs 1, Stationery goods 1, Shooks (box) 3, Soap 2, Saws 2, Tobacco 2, Vinegar and pickles 1, Woodpulp 4, woodenware 1, Wooden boxes 3, Woolen goods 1, Woodworking and turning 1, Wood pulling 1, Wool carding and fulling 1, Woolen yarns 3, Wire fencing 1, Insect powder 1.

These 707 factories employ 16,630 persons, pay out in wages \$6,303,510, have an aggregate capital of \$23,967,548, pay for material \$13,571,915 and have an output of \$26,556,488.

Deducting the amount paid in salaries and wages and the cost of material from the value of the output, it will be seen that there is a gross profit of \$6,681,063, equal to 27.37 on the capital employed.

Water Powers of New Brunswick

ZONE ONE.

Nipisquit River. At Grand Falls, 20 miles from Bathurst, 10,000 h.p. is available. On this river there is also a number of other rapids and falls.

Aroostook River. At Aroostook Falls 3,800 h.p. is developed, the greater part of which is used in the State of Maine.

Miramichi River, Tobique River. There are sites available on both these rivers.

There are small plants at Bathurst and Edmundston. The plant at Edmundston is Municipal.

ZONE TWO.

St. John River. At Grand Falls, 200 miles from St. John, is situated the largest water power in the Maritime Provinces, and one of the largest in Canada. A scheme of development has been outlined to develop 80,000 h.p. at this point.

At the site known as Pokiok site, nearer St. John, there is estimated to be about 30,000 available.

There are small plants at Centreville, St. Stephen, Shediac and Woodstock.

Prince Edward Island

Area, square miles 2,184
Population 93,728

Chief Towns.

Charlottetown, Summerside, Georgetown, Souris.

The products of Prince Edward Island are mostly agricultural and those derived from the fisheries.

There are valuable natural fertilizers. Thick beds of Mussel or oyster mud are found in the bays and river mouths, forming an almost inexhaustible supply. This is applicable to any kind of crop. Peat mud, seaweed and fish offal are also used as manures.

Considerable vegetable gardening is done, particularly in the neighborhood of the shipping ports. The chief markets are the mining towns of Nova Scotia.

The principal root crop is turnips, producing about 650 bushels per acre.

Poultry raising is carried on to some extent. The exports of poultry products for 1915 totalled about \$800,000.

A sufficient quantity of beef cattle is raised for home consumption. It is estimated that there were 103,000 cattle in the province in 1916.

Fisheries

In 1914-15 the total value of the fisheries was \$800,000. Of this amount lobsters accounted for \$500,000. The fishing industry employed 5,382 persons.

Forests.

There are no forests in Prince Edward Island. Timber occurs only in isolated lots, many of which are merely farmers' wood lots. The principal trees are spruce, balsam, fir, hemlock and white pine.

Fur Farming.

Prince Edward Island is the birthplace of Fox Farming. In August, 1915, there were 6,244 foxes in captivity, of which 4,289 were silvers, 1,508 crosses and 447 reds.

A sale of 20 silver black fox pelts was made in New York, in February, 1916, at which 7 skins brought \$1,000 each, the average price obtained being \$726.25.

Manufactures.

There are 444 factories in the province, distributed as follows:

Agricultural implements 2, Butter and cheese 44, Boots and shoes 1, Brick, tile and pottery 2, Boats and canoes 2, Boilers and engines 1, Carriages and waggons 8, Clothing (men's custom) 8, Cooperage 2, Condensed milk 1, Dyeing and cleaning 1, Electric light and power 3, Fish preserved 166, Foundry and machine shop products 1, Foundry and grist mill products 53, Log products 90, Lumber products 12, Leather (tanned, curried and finished) 3, Lime 3, Monuments and tombstones 1, Plumbing and tinsmithing 4, Printing, publishing and bookbinding 5, Slaughtering and meat packing 2, Shooks (box) 1, Tobacco 3, Wooden boxes 1, Wool carding and fulling 4, Wire fencing 1, Starch 7.

These factories employ 3,760 persons, pay out in wages \$531,017, pay for material \$1,816,804 and have an annual output of \$3,136,470. The aggregate capital employed is \$2,013,365.

Deducting the amount paid in salaries and wages and the cost of material from the amount of the output, there remains a gross profit of \$788,649, equal to 39.17 per cent on the capital employed.

Conditions In Prince Edward Island

HON. J. A. MATHIESON, Premier.

Conditions in Prince Edward Island are in many ways so different from what they are in the other Provinces of Canada that it seems necessary to briefly point out some of the points of contrast in order that our position may be more easily understood by your readers.

We have a limited area of something over 2,000 square miles of naturally fertile land, nearly the whole of the arable part of which is in private occupation.

Our population of 93,721 souls is somewhat less than it was thirty years ago, and since the census of 1911 has about remained stationary.

The principal industry of our people is mixed farming with its attendant stock raising, dairying, etc., with the added specialty of fur-farming. Our fisheries add from a million to a million and a quarter of dollars to the annual production. As we have a sufficient rainfall, which is seldom excessive, there is but little variation in the annual production of our farms from year to year, so far as quantity is concerned. Values have been increased since the beginning of the great war, both for farm and fishery products.

We have no county or township municipal councils as in the other provinces and hence a variety of statistical information easily available elsewhere is not here accessible. We have one incorporated city, Charlottetown and the five incorporated towns of Summerside, Alberton, Kensington, Souris and Georgetown.

We have very little manufacturing industry apart from such as minister to the wants of a farming community, including butter and cheese factories, starch factories, flour and sawmills, forges, etc., and those attendant on the fisheries, lobster canneries, etc. The one obvious reason for the absence of factory industries in this province lies in our defective transportation system, to and from the Island, and to this is also largely due the exodus of our young people during a quarter of a century past and the lack of growth in population, production and wealth as compared with what it would otherwise have been.

Winter conditions in the Strait of Northumberland are such that navigation can only be carried on by means of specially constructed ice-breaking steamers, which are owned and operated by the Dominion Government. Our principal ports, Charlottetown and Summerside, are not usually accessible to even these ice-breakers in the mid-winter season. Hence our import and export trade, which in summer is conducted through the ports named and

other ports, is in the winter season first confined to Charlottetown and later to Georgetown, a very circuitous route for all the central and western parts of the Island, with proportionately additional cost. This shifting from port to port, at irregular times, owing to the exigencies of weather and ice conditions, is of itself a great obstacle to successful trade and an almost insuperable bar to the establishment of manufacturing industries within the province. In any case, both in winter and in summer all freight coming or going to and from the Island has to be twice transhipped from rail to boat and from boat to rail at high cost and with much loss from rehandling, as in the case of fresh meats. Added to these difficulties there has always been the absence of cold storage in transit in summer and of warmed cars in winter on the railways of Prince Edward Island.

It is also to be observed that the navigation by the winter steamers from Georgetown, P. E. I., to Pictou has been and is subject to frequent delays and interruptions from heavy ice and snowstorms, sometimes for a few days only, but at other times for long continuous periods—twice within the present century extending to nearly two months at a time. Even at this writing our mail service to and from the Island, owing to irregularity in the winter steamer service, is performed by the little amphibious ice boats which were in vogue sixty years ago and plying between Cape Traverse, P. E. I. and Cape Tormentine, N.B. All our mails to and from the Mainland and the Island are thus now moved across the Strait with a great hardship by sheer man power, unaided by steam or other motive power.

These conditions are now about to be relieved by the establishment of a car ferry with terminals at the capes just named, and connecting the railway system of P. E. Island with that of the mainland. This important enterprise involved the creation of artificial harbors where no natural harbors existed, a very arduous and costly undertaking, made at the cost of the Dominion in fulfillment of the terms of Confederation which had stipulated for continuous steam communication daily, between the Island and the Mainland. When completed and in successful operation, as it is expected to be within the current year, together with the promised change of gauge on the P. E. Island Railway system, a most important and almost revolutionary change will be effected in our production, trade and industry. Prince Edward Island will then be

The Natural Resources Survey and the Municipality

H. E. HOWE*

Before pointing out the ways in which the Natural Resources Survey will be of real use to the municipality, it will prove useful to briefly outline what the Survey is and what it hopes to accomplish for the Dominion at large.

That far-sighted Canadian, Lord Shaughnessy, as a part of his plan to assist in the advancement of Canadian industry has entrusted to Arthur D. Little, Limited, the task of directing a survey of the natural resources of the Dominion. The first step involves the collection of definite and accurate knowledge regarding the resources themselves and the systematic classification of this information in such form that it will be readily available to all those who may care to utilize it to advantage in the work of progression and development. A duplication of effort will be carefully avoided, and the splendid results which have been obtained by the many governmental, corporate and private agencies at work will be used and acknowledged. There are, undoubtedly, many sources of national wealth which are unknown and which await discovery and exploration; there is much information in out of the way places. An effort will be made to uncover all such data and to collate this with that now published in order that the records may be as complete as possible.

As rapidly as the information can be assembled and recorded in a form that will make it more useful, it will be available particularly to the industries seeking material and those contemplating investment and development enterprises. Obviously one desiring to establish an industry can save much valuable time and money by having placed before him the locations where the required combination of natural resources, kindred industries, transportation, etc., are to be found, and a consideration of such localities will make the choice of the best location, all things considered, more certain.

One of the most important factors in the establishment and growth of a municipality is the market for labor which it offers. There are, of course, other factors, but the cities most active industrially are the ones which grow most rapidly and are attractive because of the opportunities offered both capital and labor. Labor markets are afforded by industries and by the enterprises, such as wholesale and retail establishments, which follow industries to serve them and the labor employed by them. The growth of most municipalities, therefore, depends in a large measure upon the extent to which industries are attracted and developed.

One of the attractions for industry is the variety of natural resources which the community can supply, with which, of course, must be considered transportation distribution, power, fuel, and the other economic phases.

It is, therefore, quite essential that a municipality be-

*Arthur D. Little, Limited.

come acquainted with its natural resources and local raw materials for the information of its present industries and for those who might be interested in establishing related or new industries in their community. There are many who believe that their local materials are very well known, but one coming from without seldom fails to note something which is important but which has been regarded locally as quite commonplace or even useless. In Great Britain, following the organization of its scientific forces, it was pointed out to a certain firm that a flux required by them in the treatment of ores, and which had been imported until the war cut off the supply, was to be found within 10 miles of their works in a large deposit of finer quality than the material which had been for years brought in by them. The deposit in question was well known to the Geological Survey, but unfortunately too few manufacturers and municipal officials consult such splendid reports which are sure to give them valuable information. Another example is that of a glass manufacturer in Britain who thought it necessary to import much of his sand from Belgium. It becoming impossible to draw upon his old source of supply it became imperative to look about, and he found within the British Isles a far better source of supply than he had enjoyed previously. Such instances are of frequent occurrence, and it is not too much to expect that the Natural Resources Survey will in the course of time be able to advise many industries regarding domestic sources of supply which will be found as satisfactory as material now imported.

Municipalities should be interested in the Natural Resources Survey as applied to their community for the sake of new industries no less than for the benefit of those already in their midst. The importance of making surveys pertaining to a given locality has frequently been recognized, and there are several examples of cities where experts have been employed to study the local industrial opportunities and to advise regarding the proper utilization of the raw materials which the vicinity afforded. Those cities possessing abundant cheap power, and especially water power, in some instances maintain a Bureau, whose business it is to advise others of the advantages such power affords and even go so far as to establish exhibits where information may be given to industries deemed well suited to the locality in question.

At the Second National Exposition of Chemical Industry in New York considerable space was occupied by municipalities for the purpose of acquainting industry with the natural advantages, transportation facilities, labor conditions, and markets of the various points interested. One New England city has adopted the plan of maintaining a permanent exhibit in a prominent location in which is shown examples of local products with statistics regarding production, growth, etc., and particular attention is given to maintaining a complete collection of specimens, photographs and other material evidence of natural wealth to be found in the vicinity and upon the utilization of which industries may be founded. Such a plan if well carried out and maintained, can be recommended to others.

It is obvious, therefore, that municipalities will find it much to their interest to co-operate in the Natural Resources Survey and see to it that they obtain from the Survey's headquarters information as rapidly as it is gathered along the lines of interest to them in bringing about the expansion of local industry. It is to their interest to forward to the Directors of the Survey accurate and reliable information on the specific resources of their community and be willing to fill in on standard forms the details which will give the data of interest to prospective industries and other forces for development.

The work is going forward on a basis which should guarantee hearty co-operation on the part of many individuals, boards of trade, industries, and others, and the facts collected, in all cases where not confidential, will be given freely to all those interested.

Since the municipality must depend upon industry for its maintenance and growth, and industry upon suitable raw materials for its establishment, we bespeak the interest and sincere co-operation of the municipality in the work of the Natural Resources Survey.

CONDITIONS IN PRINCE EDWARD ISLAND.

(Continued).

for the first time an integral part of the Dominion, and will be placed on approximately equal terms as to her industries, transportation and trade with the provinces of the mainland. It may then be hoped that manufactories will gradually spring up, that farms and farm products will advance in value and a great impulse will be given to our industrial progress.

Despite the hardships and difficulties above set forth, and largely because of our productive soil and the industry and thrift of our people, Prince Edward Island is in a prosperous condition, notwithstanding that it has had no share in the manufacture of munitions and war supplies which have proved so remunerative in other provinces of Canada.

The estimated production of the province during the year 1916 may be set down as follows:

Field Crops (as per detailed estimate of the Department of Agriculture)	\$11,135,830
Animals and their products (ordinary)	6,000,000
Fisheries	1,100,000
Manufactures	3,000,000
Products of Fur Farms	1,000,000
	<hr/>
	\$22,135,838

The Canadian Road Problem and National Preparedness

By CHARLES A. MULLEN.*

To be a prosperous nation, Canada must have roads. Moreover, they must be modern roads; smooth, hard-surfaced highways that will carry the traffic of to-day, and carry it in both comfort and at the least possible ultimate cost that is consistent therewith.

Roads must be built to suit the environment — both physical and financial. Earth roads are the only ones some communities can afford, while other sections may require gravel or broken stone surfaces. But wherever the traffic will warrant the expense, an economically designed and carefully constructed hard-surfaced highway is the only satisfactory solution of the road problem.

The present war has taught us at least one lesson—that it pays to be prepared. It pays when war comes, and it pays in time of peace. We fell down badly on our war preparedness. It is with peace preparedness that we must now concern ourselves, that the end of the present unhappy conflict may not catch us unawares as did its sudden beginning.

It would be hard to find another factor that will have a greater bearing upon peace preparedness than our readiness to throw the forces released by war into the building of roads and streets. Our highways are the arteries of our body politic through which the life blood of construction and reconstruction must flow. Without them, our modern world could not exist. The progress of any community is generally indicated by the state of its public roads. The highways are not only the channels for the transportation of things material; they are the avenues through which flow our community thought as well.

A mere readiness to spend money on road construction after the war will not constitute real preparedness in that line. We must be in a position to spend the money well; that is, to use the available labor power in producing the maximum of roadway values. Money squandered on the inefficient building of the wrong type of roads will not bring to Canada any measure of permanent prosperity. It is not only the spending that is required. The community must secure full roadway values in order that it may have the wherewithal to pay back the cost of construction. It is a problem in economics as well as in paving.

In planning for the future, it is always well to have at least a general knowledge of the past. The roadway work of the past fifty years or so, by its sad example, gives us much inspiration for the work ahead. Gross incompetence has been rife, and dishonesty has existed in a degree that is appalling. It is safe to say, for instance that most of the States south of us have received far less than fifty cents worth of road for each public dollar expended.

Canada, just really starting on her road building career, should take the greatest care not to duplicate the bitter experience of her neighbors across the line. To be efficiently done, road and street building must be planned comprehensively and under the careful direction of one whose knowledge is based on both years of careful thought and practical experience.

Our peace forces engaged in the building of roads and streets should be marshalled for an effective campaign just as are our war forces. The army must be under the direct orders of an able field marshal, and back of him must stand a general staff of specialists whose business it is to know the resources of the road building army in man power, equipment and materials. Careful estimates must be made, available materials tested and valued, and effective methods adopted. A staff of blundering officials pattering around in half ignorance, buying poor or uneconomical materials and wasting the available man power will not serve Canada's great need in the hour of peace.

Each community before going ahead with road or street improvements should first secure from some unbiased source the information it needs about methods and materials. It should always keep in touch with some acknowledged authority on the subject so that no expensive blunders may be made. Blessed is he who knows how much he does not know. Were more of us blessed in this fashion, we would all insist upon having our gold bricks tested; and high prices would not be paid so readily for inferior roads and road making materials. The community should protect itself against those who are willing to learn to be road engineers at its expense, and against promoters,

acknowledged or disguised, who have something to sell for all they can get for it.

With earth roads, the problem is not a difficult one. If the force engaged on their construction and maintenance can be reasonably free from evil political influences, and a few well known rules and methods are understood, no serious trouble will be experienced. Constant attention to drainage, minor repairs, and the proper use of the road drag about cover the field. It is largely a matter of having an intelligent, interested man in charge, and of his keeping eternally at it. When dust preventives come to be used, then some outside help is needed. Proper specifications should be secured from some experienced paving chemical engineer, and tests of the materials should be made as they are delivered to assure the road department getting that for which it pays.

Gravel and crushed stone roads present greater difficulties than their earthen predecessors. Larger sums of money are involved, and there is a wider range of possible good and bad results. Before anything is done in this line a careful survey should be made of the field to determine the most advisable materials that may be available. Careful specifications for and supervision of the construction are necessary, and a certain amount of testing should be done as the work progresses. If a bituminous road binder is employed in the surface, this requires special care as regards its quality and the methods of use.

Good and bad road oils and binders are sold alike under glowing colors. It will not do to take the agents' word for it; or to assume, because he has shown you good roads claimed to be of the same material, that your road will be equally good. If you do not have your material tested, the unscrupulous manufacturer — who is usually the most plausible and employs the most affable agent — will ship you undergrade material, or forward to you consignments that your more careful neighbor who tests has refused to accept.

In our modern day, earth roads and gravel or broken stone surfaces are only useful on the by-ways and in the outskirts of our civilization. On all highways where the traffic is heavy or moderately so, a hard-surfaced road can be permanently maintained — that is, originally constructed and kept in a state of constant repair — at a lower cost per mile per annum than a less substantial road covering. There is a point of greatest economy in the original outlay for a road; either less or more than which represents a waste of public funds.

Viewed in its larger aspect, the problem of road construction is to select and use the type of highway surface over which traffic may pass with genuine comfort and at the least ultimate cost per ton mile — taking into consideration road, vehicle, motive power and time factor. The better and more economical our means of transportation and inter-communication, the greater the educating and civilizing forces at work amongst us. It has been well said that the three greatest needs of an enlightened people are good laws, good schools and good roads; and our public highways form the most important of our several systems of roadways, feeding as they do all the other systems.

Public authorities should not allow any one to sell them their roads and street and paving materials. That the buyer must beware is still good law and good everyday practice in our commercialized world. About twice as much can be secured for the same amount of road money by the careful buying method. Yet, many of our public officials still regularly permit things to be sold them, the true value of which they do not know.

The building of a road or the buying of a road covering is purely a business proposition and should be treated as such. There are certain factors to be considered, and these should be thoroughly understood before the purchaser goes forth to spend the public funds. First, we want a roadway with as many as possible of the desirable features; and secondly, we want it at the lowest cost consistent with quality and service.

What we desire in a road are that it be smooth, hard-surfaced, clean and sanitary; dustless, noiseless, and non-slippery; easy to pull over; not too difficult to build, repair or renew and susceptible to repair without becoming unsightly; open to traffic at all times; attractive in appearance and economical. To be economical, it must be reason-

*Director of Paving Department, Milton Hersey Company.

Canada's Opportunity in Foreign Markets

(By the Editor).

While Canada has great resources on which to build up her industries profitable markets are essential, if her people are to realize the fuller benefit of their labors. Outside the exportation of raw materials and the products of the farm — and that only to a limited extent — our markets have been confined to within the borders of the Dominion, which with its population of but eight millions could not attempt to use up anything like the full output of the mills and factories that have already been erected and the vast number that will be built during the next decade. This means that if Canada is to become a manufacturing as well as an agricultural country she must find more markets outside the confines of the Dominion. To this end the Federal Department of Trade and Commerce for some years has been trying to find profitable markets for Canadian products with success, but strange to say the manufacturers themselves have been slow to take advantage of the information thus placed at their disposal. They seem to have an innate fear that they won't get their money; either that or they have been too indolent to study foreign markets. Another factor that seems to have frightened Canadian manufacturers against exporting their products is the keen competition in open and neutral markets and this will be more apparent when the war ceases.

In the old days before the war the principal competitors in foreign markets were Great Britain, the United States, and Germany. Great Britain was the pioneer trader of the world and her vast foreign trade has been built on the quality of her goods and the reasonableness of the prices — and she had the ships. Then Germany with her heavily subsidized industries began to look for foreign markets and became a keen competitor with the Old Country. The Germans depended on cheap labor and cheap goods for her manufacturers to get an opening on every foreign market of the world. To a large extent they succeeded, that is where inferior but showy goods were concerned and even with manufactures requiring the aid of the laboratory, such as dyes, etc., but in products of average quality, which really constitute the principal demand, the exporters of Germany never made great headway. Their system was along the lines of the trader who advertises special commodities at a low price, often at less than cost, to get people into his store so that he can sell other and more profitable goods. In the case of Germany the customers have taken the bait without the hook, with the consequence that if it had not been for the help of the Government many of her exporting industries would long ago have gone under.

A good illustration of the German system of sending out cheap goods was given in the Enemy Goods Collection which was recently loaned by the British Government to Canada. One example in the collection was a cheap clasp knife which was delivered in Africa for native trade at a price less than the raw material could be mined or taken from the forest. In fact, the whole collection, while interesting as showing Germany's pushfulness in trade of a cer-

tain kind, was only useful in showing potential Canadian exporters what to do and what not to do.

The point of the writer in thus digressing for a moment from the main theme is to show something of the weakness of Germany's system of trading.

The foreign trade competition of the United States was made possible by specialization and high tariffs. The protective tariff enabling the manufacturers to get big profits at home for the larger part of their products so that the balance — whatever the price — sent abroad was so much profit. But the United States is handicapped by lack of ships, practically the bulk of her exports being carried in British bottoms. A fourth keen competitor, particularly in the Far East, has recently come to the front in Japan. For the last forty years this island nation of the East has been gradually evolving or rather changing to the civilization of the West, and as one of the great fundamentals of Western progressiveness is that of commercialism, Japan in the early stage of her change, made a determined effort in the fields of manufactures and commerce. But first she sent out her best men to study the different systems and wisely eschewed the worst and adopted that which was best in each. Though Japan has built up a large foreign trade principally with China and India she is very limited in her natural resources — that is of commercial value — making her foreign exports largely of what might be termed luxuries.

Such was the foreign trade situation before the war and any prediction of what other countries will do when the war is over would be but guess work, but this we do know, that all the while Great Britain has been turning her factories into munition works and building new factories for the same purpose, she has been preparing plans so that every works and factory on the termination of the war can be immediately used for the manufacture of those goods which have built up her commerce. So much so has she planned that the output is expected to reach at least double the quantity of that which was produced previously to the war. For this extra output the Old Country must find outside markets for her own population will be lessened by the scourges of war. The principal reason of all this planning for increased manufactures is to enable Great Britain to pay the enormous expenses of the war.

This brings us back to the question, of finding markets for Canada's products, and in finding markets consideration must be given to return cargoes. In other words profitable foreign trading is based on the first principles of trading in kind. That is, one country sells to another country goods or produce that are wanted and buys in return other goods that it wants. Of course, this is impossible in these days of competition in manufacture and commerce, but that country is best off which has the most natural resources of commercial value, and herein Canada has her great opportunity. For instance she already supplies the world with all its nickel and asbestos, much of its copper and most other known minerals. And what an income she could enjoy if she refined and manufactured her own minerals, but that is another story. The fact stands out that Canada is probably the most fortunate country in the world is her natural resources, to which must be added her geographical position and her splendid transportation facilities to her ports of export — west, east or south — which should place her as one of the great exporting nations of the world; if her commercial sons are big enough to take advantage of their opportunities.

THE CANADIAN ROAD PROBLEM AND NATIONAL PREPAREDNESS.

(Continued).

ably low in first cost and not too expensive to repair, renew and clean; it must not be hard on vehicles or motive power; must have relative durability; and should represent as far as is intelligently consistent the greatest amount of home industry and control.

It is not possible to get all that we want in one type of roadway. The perfect road has not yet been invented. The most that we can expect at the present time is to be able to select intelligently the type of road that will furnish us with the greatest amount of satisfactory service at the lowest final cost. This is a cold, business proposition that can only be settled rightly after a careful study of all that is available for road-building, and the factors above enumerated in their relation thereto.

The day when the public would quietly submit to poor roads, or bad roads, or roads of extravagant cost, is about passed. The public official who will get for a community good roads — known to be good — at the lowest possible cost consistent with ultimate economy, is Canada's urgent need in public life to-day.

WE MUST BE PREPARED.

Unless the greatest caution is exercised, there is bound to be vast industrial trouble. Much as we will regret it, it is almost inevitable and will be world-wide. Therefore, the great and pressing question for us in Canada is how to fortify our country as surely as possible against its effects. We will have that great army of munition workers suddenly thrown among the great unemployed, we will have the immigrants fleeing from war-worn Europe in large number to our shores, and we must look ahead and be prepared for them. We will find ourselves all in a day with the mightiest problem of unemployment on our hands that this young nation has ever faced, and, if that problem finds us unprepared, unparalleled disaster may easily overtake us.— Hon. Robert Rogers.

Municipal Preparedness and the Chemist

By T. LINSEY CROSSLEY, A. M. San. Soc. C. E.



This war has been called "a war of chemists."

Forty years of drill and training was not all the tale of Germany, but forty years of chemistry and theory. When the military party in Berlin rang up the curtain, everything was ready, or was it? One thing was forgotten. Such years of faith in theory and drill had blinded the eyes of the system's devotees; soul and spirit, love and laughter were lacking as factors in it. Loyalty they had not analyzed. They had put the cart before the horse, that's all.

The cart's all right in its way. If the science cart was considered of supreme importance in preparing for war, it may be concerned in preparing for peace, but only in its proper place. A pack-horse is sufficient in the mountains, but on the plains a cart of some kind is an economic proposition. The horse being motive is, however, the first consideration. Lest we digress too far, we will stop just now, and say that, for many years, we have tried the cartless horse method of municipal activity. We have thought that our leading men should be elected to manage our community interests on the basis of faith, hope and charity. The ideal is right, but in practice, the objects upon which the faith, hope and charity of our elected representatives have been exercised have not coincided with the public welfare.

To an increasing degree we are involved in a municipal technology. When we have a toothache, we do not go to a poet or a minister, however highly we respect and love their lofty ideals. We go to a man who knows the difference between a bicuspid and a butterfly. We would not engage a real estate agent to run a dynamite factory.

We do expect the following to run a town — when they feel inclined:

- One lawyer.
- One farmer (retired.)
- One general storekeeper.
- One lumber dealer.
- One hotelkeeper.
- One undertaker.

We expect them to feel inclined frequently, and not to look for anything in the way of remuneration apart from copious criticisms, and social prestige for their wives when a reception is tendered the local member. We expect them to provide us with:

- Good water.
- Good roads.
- Good drains.
- Good food.
- Good air.
- Good light.
- Good health.
- Good laws.
- Protection from:
 - Disease.

Fire.

Crime.

To obtain these, about enough money is available to keep one policeman and a water-waggon.

We wonder if Our Town would not better be run by:

- One Engineer.
- One Chemist.
- One Doctor (medical).
- One Business Man.
- One Lawyer.

At once we are asked: Are these men to be paid? Who's to pay them? Where's the money to come from?

Of course the communities should be so distributed as to population and revenue that these questions could be settled offhand. This is not the case. What next? Why, let's pay for part of their time. Let us retain them for certain definite times and occasions, less or more, according to population and work required. This is done to some extent now in the cases of:

- Engineer.
- Medical Man.
- Lawyer.

Look over the list of "Good" things we want, and ask ourselves why not also retain a chemist to round out the group? The word CHEMIST hardly describes the man who would be useful in the chemical situations that arise in connection with towns — Chemical Engineer comes nearer. He must be a man of broad general experience and knowledge; he must know not only how to make certain tests and determinations, but must be conversant with the technical point of many trades and industries.

He has to co-operate with the Engineer in the laying of roads and sidewalks, the digging of drains, the painting of bridges and fences, testing paints, oils, fuel, asphalt, cement, sand and stone, and in the preparation of specifications.

He has to co-operate with the Medical Man in the analysis and bacteriology of water, milk and foods, the testing and valuation of disinfectants.

He has to co-operate with the Business Man in the selection of materials for the use of the town; that these shall be of maximum value for the money spent. He must be able to advise the town with reference to help for proposed new industries. He has to co-operate with the Public Departments in the supply of material for their special uses; with the Police in prevention of adulteration, and frequently in the prosecution of criminals; with the Fire Department in examination of hose, sprinkler heads, extinguishers, rubber for hose and salvage covers.

He can co-operate with the Farmer in the analysis of soils, fertilizers and insecticides.

He can co-operate with the local industries in their purchasing and maintenance.

He can assist the schools and churches in matters of ventilation and sanitation.

The large cities maintain laboratories and chemists as a matter of necessity. The smaller cities, towns and villages do not, owing to lack of funds, or rather failure to see the necessity.

Every city of 50,000 or more should have its own laboratory and a good chemist. The equipment and maintenance should not cost more than five cents per capita. In a city of 50,000 this would provide for a chemist at \$1,500 per annum, an assistant at \$600 per annum, and leave \$400 for equipment and expense account.

The assistant need not be engaged for the first year, and this would provide \$1,000 for apparatus and equipment with which to start. Subsequently, \$250 per annum would be enough for supplies and new apparatus. The balance, \$150, could be set aside to provide a fund for extension later. Any city which was enterprising enough to do this would, of course, be in the growing class, and would soon see results. Much depends on the personality, education and ambition of the chemist himself. With the proper man, the institution would soon be found a necessity.

For the smaller cities and the towns, it would, perhaps, be found too expensive to maintain a laboratory. There are in Canada at least five firms of consulting chemical engineers, who give special attention to municipal work. These firms embrace chemists, metallurgists, food specialists, and engineers, and make contracts with municipalities

Electoral Reform and Preparedness

HOWARD S. ROSS, K.C.

A striking illustration of the importance of this question is found in the official report dated January 27, 1917, giving the result of the Conference on Electoral Reform, at which were present representatives of the various shades of political opinion in both Houses of Parliament in Great Britain.

That such a group of distinguished men should, during the war, devote their time and thought to this matter shows the urgency.

Woman Suffrage.

The conference decided by a majority that some measure of woman suffrage should be conferred. A majority of the conference was also of opinion that if parliament should decide to accept the principle, the most practical form would be to confer the vote "on any woman on the Local Government Register who has attained a specified age, and the wife of any man who is on that Register if she has attained that age." Various ages were discussed, of which 30 and 35 received most favor. The conference resolved that if parliament decided to enfranchise women, a woman of the specified age, who is a graduate of any university having parliamentary representation shall be entitled to vote as a University Elector.

MUNICIPAL PREPAREDNESS AND THE CHEMIST.—(Contd.)

and industries to carry on such tests and investigations as may be called for.

The value of a retaining contract lies not so much in having the work done without extra bookkeeping and differing prices for each piece of work, but in the fact that a scientific organization is making the interest of the town a part of its regular business system.

Even rural communities and county councils would find it to their advantage to take up this line of work. The writer has in mind one county council which built a stretch of road at a cost of \$150,000. It was specified that this was to be macadam and made of a special hard stone that was to produce a nearly dustless road. The contractor ignored that specification, and laid a road with a soft limestone, with the result that the new road was even more dusty than the old one. A hundred dollars' worth of inspection and analysis would have prevented this.

Small industrial communities might be able to raise enough money to pay for equipping a laboratory, and part of a chemist's salary; the chemist being allowed to undertake work for the local industries. In some places the expense on chemist account could be kept down by encouraging citizens to bring in samples for analysis at special rates. In dairying centres, for instance, the municipal chemist would be useful as a referee between milk producers and buyers.

Almost every public work has in it something that a trained scientific man could recognize as a flaw, fraud or error. No discussion of conservation or national preparedness is complete without attention to the basal principles of chemistry and physics; yet our legislative bodies and cabinets do not include chemists or engineers.

Much of our industrial legislation could be improved by bringing to bear upon it the science of chemistry in addition to the phraseology of law.

In any scheme of municipal progress, the chemist and his value should be carefully considered.

If you engage a chemist, don't get an inexperienced man because he may be engaged at a low salary. Get one who has been schooled as assistant in the laboratory of some large city or consulting firm.

In conclusion, do not expect to find your chemist in possession of King Midas's touch. Sometimes he is able to indicate and help to carry out very direct savings. Generally he is regulative and preventive. The value of the cure cannot be estimated, if the prevention is effective!

Proportional Representation.

The principle of proportional representation was approved of and if the recommendations of the conference are carried out one quarter of the members of the House of Commons will be elected by the proportional representation system.

The conference consisted of thirty-two members, only two of whom (Earl Grey and Mr. Aneurin Williams) were known to be convinced supporters of proportional representation. The resolution approving of proportional representation was agreed to unanimously.

Political Advantages of the Hare System.

Encourages Voting by Making Votes Count. Increases interest in public affairs by giving each voter a share in the election of a member of the representative body.

Permits Voters to Express on Their Ballots Their Real Will. Under the old-fashioned system not only are many ballots ineffective in helping the candidates marked, but many ballots are not even marked according to the real will of the voters who cast them. To mark your ballot according to your real will under the old system would often be merely to throw it away. Under the Hare system you can express your real will on your ballot, even to the extent of voting for a candidate, who, you think, has no chance of election, without fear of wasting even a fraction of your voting power. Under the Hare system political parties cease to be the masters, and become the servants, of the rank and file of the voters.

Discourages Corruption. Under the old-fashioned system — election by single-member districts — members can be elected by a mere majority or plurality vote in their district, so that the opportunities to turn the scale in close districts, both in the final elections and in the primaries, are very inviting to the corruptionist. Under the proportional system, on the other hand, the corruptionist is discouraged at the outset, for to elect even one member under this system requires polling enough votes to deserve a member, that is, about as many as all the votes in one of the old single-member districts.

Reduces Incentives to "Pork Barrel" Legislation — in cities, petty ward politics. Under the old-fashioned system each member of the representative body is dependent for re-election on the voters of his petty district, and they are not united except on the prosperity of that district. Faguet, the biting Frenchman, said that, "democratic government is a cult of incompetence," but that does not mean that we should be dissatisfied with democracy, but rather with democratic government as now organized.

Professor H. A. Overstreet puts it well when he urges the necessity of getting great big common denominators — as big as we can get them. He points out that we must find the groups where there really is some measure of common experience and common judgment and make these groups our political units, our social brain-centres which are now wards and counties, square miles of space inhabited by heterogeneous crowds having nothing deeply and continuously in common. Is Professor Overstreet too severe when he says, "Until we tap such centres as these, we shall remain as we now are, socially and politically brainless."

Proportional representation will help us to tap our social brain-centres.

POTENTIALITIES OF CANADA.

"In its broader aspects the application of industrial research to the development of the natural resources of the Dominion and the promotion of the welfare and prosperity of its inhabitants holds out a prospect calculated to fire the duller imagination. In Canada less than ten million people have come into an inheritance as rich in potentialities of wealth as that which has enabled one hundred millions in the United States to take first rank among the great producing nations of the world."—Arthur D. Little.

How Proper Inspection and Testing Saves Money

R. ROBERTSON DEANS.*

As a protection to Municipalities, we outline below methods that should be adopted in the inspection of materials.

In sampling and testing of cement the sampling should be done prior to the shipment from the Cement Mills. Experts representing municipalities should be permanently located at all the large and more important plants to sample the cement as it is being loaded into the car, taking samples from each tenth barrel or fortieth bag. The quality of the cement thus obtained is passed through sieves having 30 mesh to the lineal inch, which not only breaks up all lumps but insures an intimate mixture of the various samples. A representative sample is thus obtained from each car, that is from each 180 to 200 barrels. After the car is loaded the doors are closed and sealed. Inside the car door is placed a card bearing the name of the manufacturer, and the number of bags.

Testing.

Samples should then be forwarded to the nearest Laboratory, and put under test. These tests consist in the determination of Specific Gravity, Fineness, Normal Consistency and Time of Set, Purity Test, Constancy of Volume and Tensile Strength. For Tensile Strength determinations, 24-hour tests are made with neat cement, and 7-days and 28-days tests are made both with neat cement and with the standard sand mixture. All tests should be carried out in accordance with the requirements of the Canadian Society of Civil Engineers Specifications, British Standard Specifications, or American Society for Testing Materials Specifications.

Chemical.

In addition to the above tests there is the Chemical Analysis. This would at once detect the adulteration of Cement by considerable quantities of inert matter, such as slag or ground limestone. It would also detect the presence of all other constituents which are harmful if they exceed certain proportions.

Testing of Sand and Gravel.

The sand and gravel used should be tested, which would show at once whether the material was suitable to produce a concrete of the highest character.

The test would consist of the following: Determination of percentage of moisture, in the material as received, Split and Organic Matter, Granulometric test, per cent of Voids, Specific Gravity and Tension Tests. The latter determination could be made both with washed and unwashed material and compared with the Tensile Strength of Mortars of the same consistency made with similar proportions of the same cement and Standard Ottawa Sand.

Waterworks Material.—Inspection.

CAST IRON PIPES AND SPECIALS:—In the inspection of this class of material, all casting operations are supervised to see that the pipes are cast while the flasks are in a thorough vertical position, that the metal used is such that it will produce pipes and specials of the most uniform and perfect condition, free from core seams, lumps, sand nols or any other imperfection. Stripping and cleaning operations are carefully supervised and no pipes are allowed to be taken from the flasks while showing any color of heat which would induce internal and external strains on the metal. After cleaning and before coating the pipes are carefully gone over one by one to see that they are straight, cylindrical throughout, that bell and spigot ends are of the proper diameter, etc. Each pipe is also subject to careful inspection with a "Pick Hammer" in order that the presence of blow-holes, blisters, etc., may be detected.

Physical Testing of Materials.

To make certain of the character of the metal used, sample bars should be cast from each run of metal, which are subject to both transverse and tensile tests. The deflection of the bars while under load should be carefully noted, the character of the fracture, etc., which gives valuable information as to the quality of the metal.

If the plates are accepted on chemical and physical tests, rolling should be carefully supervised, after which a careful examination can be made of each plate for surface defects.

When the manufacture of the pipes is in process at the pipe shop complete fabrication must be supervised, such as

where the joints are made either by the Butt or Lap-Weld process, both the method and material are supervised to see that the resulting work is nothing but first class in every way. For pipes of large diameter, where the joints may be made by riveting, the assembling, punching, riveting, etc., receive most careful attention.

Coating.

During this process, our Inspector carefully notes the temperature of the bath, character of the varnish, and sees that the coating is such that it will properly set and that a smooth uniform surface is produced.

Hydrostatic Test.

After coating of cast iron pipes as also steel pipes, the Inspector personally witnesses each and every pipe under Hydrostatic Test, and while the pipes are under water pressure same are hammered. Any pipes which show any signs of sweating, leaking or pinholes, are rejected and not allowed to be shipped on our clients order.

Reports.

Full reports of inspection tests and shipments would be rendered showing the weight of each pipe as also the weight of the entire shipment.

STAND PIPES:—My own firm has carried out the complete inspection of stand pipes for many cities throughout the Dominion which consists of inspection of material used, inspection of erection, both of which are of vital importance. After inspection of the material has been made at the bridge shops or structural plant, where the stand pipe is being fabricated, our field inspector supervises the erection of same, paying particular attention to the laying-out of the material, lining and plumbing, riveting, painting, etc. Owing to the fact that the plates, joints, and riveted connections will have to resist various complicated stresses on account of these stand pipes being situated in a climate such as we have in this country and which are subject to freezing temperature, we feel that the inspection of stand pipes is of the greatest importance.

Sewerage Vitrified Pipes.—Inspection and Testing.

SEWER PIPES:—In connection with the inspection of sewer pipes; owing to the large amount of complaints arising in connection with defective material shipped from the pipe works, inspection and testing at the point of manufacture is indispensable. A proper method of inspection eliminates entirely all such complaints. Each pipe should be examined to see that it is perfectly straight and not warped in any way, that the bore of the pipes are uniform from end to end and that they are sound and well burned, and glazing free from checks cracks and flaws of any kind. The diameter of the bell and spigot ends are carefully examined so that no pipes are shipped which are not perfectly cylindrical in every way. Tests are made so as to ascertain the fitness of the pipe for permeability, resistance to crushing and the ability to withstand chemical action, which possibly will be brought to bear from the refuse passing through same.

UTILIZATION OF FISH WASTE.

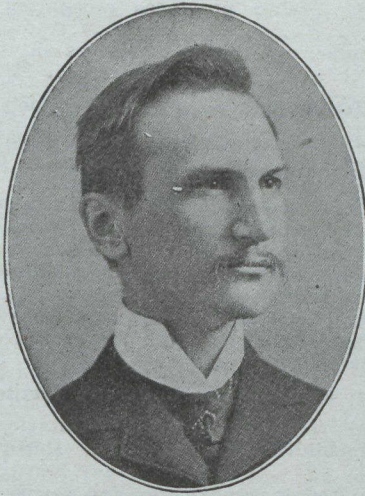
The profitable utilization of the immense quantities of waste material which characterize practically every branch of the fisheries presents one of the chief problems in securing efficient conduct of the Canadian fishing industry. As a result of investigations on the Pacific coast, it has been estimated that the sheer waste of the fisheries of Alaska amounts to 70,000 tons per annum and of those of British Columbia at from 15,000 to 20,000 tons. The proportion of waste material in the lobster canning industry is extremely high. Mr. R. H. Williams, of Halifax, makes the startling assertion that of 32,000,000 pounds of lobsters required for an average Canadian season's pack of 160,000 cases, only 6,500,000 pounds are utilized, 25,500,000 pounds being absolutely wasted. In other words, the lobster industry as now conducted uses only 20 per cent of the raw material. Even under such conditions, the annual value of this industry to the Dominion is normally around \$4,000,000.

From the foregoing figures it will readily be appreciated that few industrial improvements could render more substantial aid to the fishing interests than the perfection of practical methods of converting the offal to economic use. Experiments now being conducted by Mr. J. B. Fielding for the Commission of Conservation will prove of material service in solving this problem.—Monetary Times.

*Canadian Inspection and Testing Laboratories.

After the War --- What?

By W. D. LIDTHALL.



After the war — some points may be taken as fixed and "dead sure." Among them are:

- Cessation of munition work.
- Return to labor and trade of the army.
- Very heavy taxation.
- A period of uncertainty and depression.

Hard times are therefore likely to threaten us severely during the year following peace.

Once that adjustive period is passed, the signs are good: greater production, increased agriculture, desirable emigration. A period of hope, energy and enterprise should then set in motion a wave of prosperity, probably greater than has yet been seen—at least if we are to judge by what happened within five years after the American Civil War.

If all this diagnosis be correct, the problem is: How to deal with the first efforts of peace in that period of uncertainty and depression.

To those specially interested in municipal affairs — and in particular those of the cities—the sudden throwing out of the crowd of munition workers, offers serious possibilities. If the change come in the autumn, and the return of manufacturing to normal conditions be long delayed, the outcome might be one of acute misery and riot. Labor troubles in the United States would occur and would affect Canada. It has been truly remarked that such a situation is so vast that it is beyond the power of the municipal authorities to cope with alone. All the governments require to co-operate, if the situation is to be effectively handled. And their efforts—Federal, Provincial and Municipal—require a previously considered plan. My view is that a Federal Commission ought to be at once created, or one of the existing commissions set to work, to immediately organize the efforts of the three classes of powers; so that each shall arrange a complete programme of public works, to be set in motion the day after peace is proclaimed. In the programme for each province should be placed; among other items, a provincial highway forming part of what will one day be a highway across the Dominion; and to this should be added a land settlement scheme. Each municipality should have its own programme of streets to be opened and completed, parks and boulevards and other town planning improvements, with memorial arches and monuments and other public works. The schemes of the Dominion Government ought to be on a more extensive scale and suited particularly to the returned army. One thing clear is that the army ought not to be disbanded suddenly, but gradually, commencing with those who have positions to go back to, and fitting into the plan a Federal Labor Bureau. Besides the preparation of land settlement colonies, improvements to the national capital, soldiers' homes, war museums, shipbuilding, aeroplane industry, and the ordinary kinds of public works, might be arranged for on the list in question. If we can smoothly cross that first period, when our labor market will be dislocated so badly, we shall have in our favor elements of vigor, daring and hope, which will soon send us bounding into the fresh era of prosperity for which we so ardently long.

Foreign Languages Should be Taught

"In discussing the problems involved in the great matter of 'Reconstruction after the war,' no question more frequently recurs than this, namely: Is our present system of school education a sound one? Has it kept abreast of modern requirements and if not what is lacking? The majority of commercial men and women to-day will unhesitatingly answer, that it is not up to date, because foreign languages are neglected. It is pleasing, therefore, to record that Lord Shaughnessy, the distinguished President of the Canadian Pacific Railway, who is once more amongst us as an honored guest, voiced in the first interview he gave upon landing the crying need for greater attention being paid in our schools to universal instruction in foreign languages if we are to conduct a successful trade after the war. Lord Shaughnessy is pre-eminently one of the men who are qualified to speak for "all the Britains"; engaged as he is in one of the wealthiest and most attractive countries in the world and in laying deep the foundations of British civilization in the great Dominion of the West. "In the past," said Lord Shaughnessy, "we have been content to give our boys and girls just an adequate education in their own tongue. If the lessons of the war are to be taken to heart and if we are to extend our trade, then we must make our youngsters familiar with the language of other nations. The French language should be made compulsory in every common school throughout the Empire, for it is the most common medium in the exchange of thought all over the world. Russian and Italian, too, should be studied."

These are wise words. How many of us when travelling upon the Continent have had to deplore the fact that we could only speak our own mother tongue. Our merchants and business men were forced to take into their employ countless thousands of German clerks to translate their foreign correspondence, answer their letters and so learn the innermost secrets of their business because they could not obtain British employees who were proficient in foreign languages. Why? Not because our people are less intelligent than other peoples, but because at school, when the mind is being formed, it was not made compulsory for foreign languages to be taught. What better compliment could be paid to our gallant Ally France, than that this suggestion of Lord Shaughnessy's should be carried out and the teaching of French be made compulsory in every school throughout the Empire. It is better far than spending thousands of pounds on monuments and statues of which we have already a super-abundance. And then, how many of us realize that in the great Dominion of Canada there are to-day over 2,000,000 French Canadians, loyal British subjects, who speak the tongue of their Motherland — France? They are the descendants of those gallant French soldiers, sailors and farmers who four hundred years ago began the settlement of Canada and in the years to come they will be counted, not by two, but by twenty millions at their present rate of increase. Modern conditions demand a modern education for our children, and the living languages will ensure them successful careers in the business world, whereas the dead languages, which are still so largely taught have merely an academic interest.—Editorial taken from a Brighton (Eng.) newspaper.

"Grown up Children" or Mental Defectives

J. S. WOODSWORTH,
Director Bureau Social Research, Winnipeg.

Feeble-minded persons, because of a defect of the brain, existing from birth or from an early age, do not "grow-up" mentally. Though adults in years and stature, they remain children in mental habits and capacities.

Some of them, known as idiots, are absolutely helpless. Mentally they are infants.

Others, known as imbeciles, have a mental capacity corresponding to that of a child of from three to seven years. These can be taught to care for their own personal needs, to avoid common dangers, and often they can be trained to do simple tasks.

The highest grade of feeble-minded, sometimes called morons, have the mental capacity of children eight to twelve years of age. Many of them can be taught to do complex manual labor under direction so long as it involves no planning, reasoning or independent judgment. (Committee on Provision for the Feeble-minded, Philadelphia).

In the school, while decidedly a misfit, the mental defective's shortcomings are early recognized and no more is demanded of him than his defective brain enables him to do; but in the community, in later life, the sad combination of his childish mind and his adult years inevitably brings him into conflict with laws, customs and rules of conduct, all of which have been devised for persons whose minds as well as bodies are those of adults. Thus we often find the mental defectives dependent upon charity because of their inability to care for themselves, or to provide against adversity; delinquent because of their inability to understand laws, or their failure to control their acts, and sexually immoral because of their inability to defend themselves from the advances of others or to deal with the problem of their own sexual life as the standards of the community require. (Walter I. Treadway, in Springfield Survey).

Insanity and Feeble-mindedness.

The mental machinery of the insane is out of order and may be set right; the mental defective never had a full equipment of mental machinery, and no amount of treatment or education can give it to him.

Feeble-mindedness Caused by Feeble-mindedness.

Goddard and Tredgold show that in at least 80 per cent of their cases the mental defect had been preceded by other cases of mental defect in the immediate family line.

Mental Defectives in Manitoba.

Reported by Department of Education	71
Winnipeg School Board	91
Government institutions and philanthropic institutions	452
Individual reports	47
Clergymen, doctors, farmers and women's organizations	41
Ruthenian Survey	12
Rural School Teachers' Questionnaire	64
	778
Deducting duplicates	714

Mental Defectives in Saskatchewan.

Department of Neglected and Dependent Children	43
Reported to above Dept. but not dealt with	48
Saskatoon City Schools	26
Regina City Schools	6
Battleford Hospital for Insane	40
Regina Bureau of Public Welfare	20
Special reports, doctors, clergymen	26
Grain Growers, Women's organizations	10
Ruthenian Survey	3
Rural School Teachers' Questionnaire	55
	277
Deducting duplicates	272

Mental Defectives in Alberta.

Department of Education	426
Supt. of Neglected and Delinquent Children	82
Institutions	15
Individuals, doctors and clergymen	29
Ruthenian Survey	1
Secretaries of farmers' and women's organizations	8
	561

According to our preliminary survey (1916) we have in the three prairie provinces recognized mental defectives 1,547
Estimated number of mental defectives in the three provinces 2,300

Mental Defectives in Our Schools.

In a normal school population about one-half of one per cent of the children are genuinely mentally defective and should be treated in institutions. Ranking above these comes a group of feeble-minded children, constituting 3½ per cent of the school membership. These children are educable in special classes of public schools, but few of them can become independent members of the community. (United States Bureau of Education).

The mentally defective not only are retarded, but they retard the whole class and, not infrequently, cause endless trouble in the school.

Mental Defectives in Children's Institutions.

Of 4,850 children in orphanages in Ontario, 600 or 8 per cent were mentally defective. (Dr. Helen McMurchy's report).

Of 958 children in orphanages and homes in Winnipeg only 5 (in Children's Aid Shelter) were reported as mentally defective. Western Canada has no psychopathic expert.

Mental Defectives in Non-Appropriate Institutions.

Agencies instituted for the care of mentally normal persons (hospitals, homes, employment and relief bureaus, social welfare institutions, industrial schools, gaols, etc.) are at present forced to care for the mentally subnormal. These agencies are not only unfitted for the task, but their efficiency is impaired and the expense of maintenance is greatly increased by the additional responsibility.

It is estimated that from 25 per cent to 50 per cent of criminals, prostitutes and inefficient are feeble-minded.

Mental Defectives Among Our Immigrants.

American specialists believe that 4 out of every 1,000 immigrants are mentally defective. During the past 15 years Canada has received 3,000,000 immigrants. Last year the Toronto General Hospital discovered 222 feeble-minded persons born outside Canada, which is more than the total number rejected among the 3,000,000. (Dr. Page, Chief Medical Officer, Quebec).

Our Present Policy.

At present we treat the mental defectives as if they were normal. We give them, or attempt to give them, the same education as we give normal children; and we fail to fit them even for the work which they might do. We cure their physical ills and send them out into conditions in which they are bound to contract, within a few days, the self-same diseases. We treat them kindly, we admonish them, we pray for them; and then send them forth as sheep in the midst of wolves. We find them situations, for which we should know they are not fitted, and which they cannot hold, and thus we contribute to their delinquency. We punish them without making any effort to discover whether they are really responsible.

Many of these people now in non-appropriate institutions in the three prairie provinces are costing the community, for maintenance alone, \$1.00 a day up. This is exclusive of capital expenditure.

Mental defectives are here in hundreds; they are multiplying rapidly; more are coming in every shipload of immigrants. Under existing legislation the community is helpless.

Our Future Policy.

Stricter immigration laws and more effectual inspection. Amended marriage laws.
All mental defectives to be regarded as wards of the State, "their mental incapacity and not their poverty or crime to be the motive for the State's interference." (British Royal Commission on Mental Deficiency, 1913).
This involves—special protection (supervision, sterilization or segregation); special training; and, in some cases, maintenance.

What Canada Has Lost in Her Industries

NICKEL

(Prepared by our own Statistical Department).

Canada Has the Greatest Nickel Mines in the World, Situated in the Sudbury District of Ontario, and From the Ores Mined There is Produced the Larger Proportion of the World's Consumption.

The refining is not done in Canada, but the ores are melted into a "matte" at the smelters, and shipped to the United States for the refining process.

These ores contain, in addition to the Nickel, a very considerable amount of copper.

The following table shows the "matte" value of these ores shipped for refining, for the eight years from 1907 to 1914; the value of the refined metals obtained after refining, and the loss to Canada through lack of refining facilities, i.e., the difference between the "matte" value and the "refined" value.

It will be seen that the total "matte" shipped was 272,191 tons, which produced 139,011 tons of nickel, and 79,470 tons of copper; that the value of the "matte" was \$39,028,118, and the value after

refining \$113,596,451, a difference, or loss, of \$74,568,333.

In this connection, it is interesting to note that the nickel production for 1916 was almost double that of 1914.

The 1916 production amounted to 83,000,000 approximately. Calculated on the basis of the 1914 figures, it would require 84,600 tons of "matte," valued at \$13,086,753 to produce this amount. The value of the refined Nickel would be about \$31,244,000, and the value of the copper produced from the same ores \$10,000,000 approximately, a total of \$41,244,000. This would mean a loss for 1916 of about \$28,000,000.

If we take the loss for 1915 as being approximately the same as that of 1914 (about \$10,000,000) this would result in a total loss for the ten years of \$112,568,333, or over eleven millions of dollars per annum.

THE NICKEL-COPPER ORES OF CANADA (SUDBURY DISTRICT).

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	Total Quantity.	Total Value.
Nickel contained in "Matte" shipped, tons	10,595	9,572	13,141	18,636	17,049	22,421	24,838	22,759	139,011	
Value	\$9,535,407	\$8,231,538	\$9,461,877	\$11,181,310	\$10,229,623	\$13,452,463	\$14,903,032	\$13,655,381		\$90,550,360
Copper contained in "Matte" shipped, tons	6,996	7,503	7,873	9,630	8,966	11,116	12,938	14,448	79,470	
Value	\$2,821,432	\$1,981,883	\$2,044,237	\$2,453,213	\$2,219,297	\$3,635,971	\$3,952,522	\$3,937,536		\$23,046,091
Total value of metal produced from ores exported in "Matte" form										\$113,596,451
"Matte" shipped to be refined, tons	22,025	21,210	25,845	35,033	32,607	41,925	47,150	46,396	272,191	
Value	\$3,289,382	\$2,930,989	\$1,913,112	\$5,380,064	\$4,945,592	\$6,303,102	\$7,076,945	\$7,189,031		\$39,028,118
Amount lost to Canada by export of ores for refining (eight years)										\$74,568,333

TOTAL VALUE OF REFINED METALS OBTAINED FROM SUDBURY NICKEL-COPPER ORES FOR TEN YEARS, 1907 TO 1917; VALUE OF "MATTE" SHIPPED FOR REFINING, AND AMOUNT LOST TO CANADA THROUGH LACK OF REFINING FACILITIES.

Value of Nickel and Copper Matte exported \$59,864,000

Value of Matte after being refined in other countries \$172,432,000

Loss to Canada (difference between "Matte" and refined values \$112,568,000

Loss to Canada for ten years \$112,568,444

The Province of Quebec

The Province of Quebec has a remarkable history behind it. On its soil has been witnessed all the epochs that have marked the evolution from the land of the red man to the land of the white man—from Paganism to Christianity—from the struggle for principles to the struggle for commercialism. On its soil has been spilled the blood of the Frenchman and the blood of the Englishman, to combine, as it were, in the impregnation of that seed of brotherly love sown by the early missionaries, the harvest of which we see to-day in the descendants of both old foes, living and working together for the common cause. This history, rich in momentous events, and the production of some of the outstanding figures of this continent, and a literature which Quebec need be proud of, has been the bond that has held the people, from generation to generation, to its soil. Though this continent and this age may spell commercialism, the fact that Quebec has such an history will do much to enable its people to better live up their responsibilities, and to better appreciate their wonderful opportunities generously offered by old mother earth.

Agriculture.

Quebec is the only Province that has a larger rural than urban population. Taking out the City of Montreal, with its population of 656,000, the preponderance in numbers of those living in the country over the city is more than two to one. This love of country life was initiated and encouraged through the seigniorial communal system of building the farms almost side by side, with the farms running a long way back. This wise policy on the part of the early rulers of the province in thus giving the means of easy social intercourse held the people close to the land, and made them contented and prosperous—for let it be said that per capita, the rural population of the Province of Quebec is more wealthy than any of the other provinces. It is true that the system of farming prevailing in some of the districts is not exactly a scientific one, as we understand the term, yet nature has been very generous, and the people industrious and provident, and since agricultural colleges have been instituted, old fashioned ideas are fast giving way to new methods as the younger generation take their place on the farm, with correspondingly increased and better crops.

Forest Wealth.

In her forest wealth Quebec is particularly fortunate, the area comprising about 130,000,000 acres, of which 52 million acres are either leased or private forests. The balance of 78 million acres belongs to the Government, and as the demand for paper is rapidly increasing, it will not be long before even this vast acreage of forest will be leased. The Provincial Government evidently having in mind the wanton destruction of the forests of the United States and in other provinces of Canada, has taken strong measures

for the proper regulation and conservation of the forests of Quebec. These strict regulations will practically make the forests inexhaustible, even though the whole acreage was to be utilized.

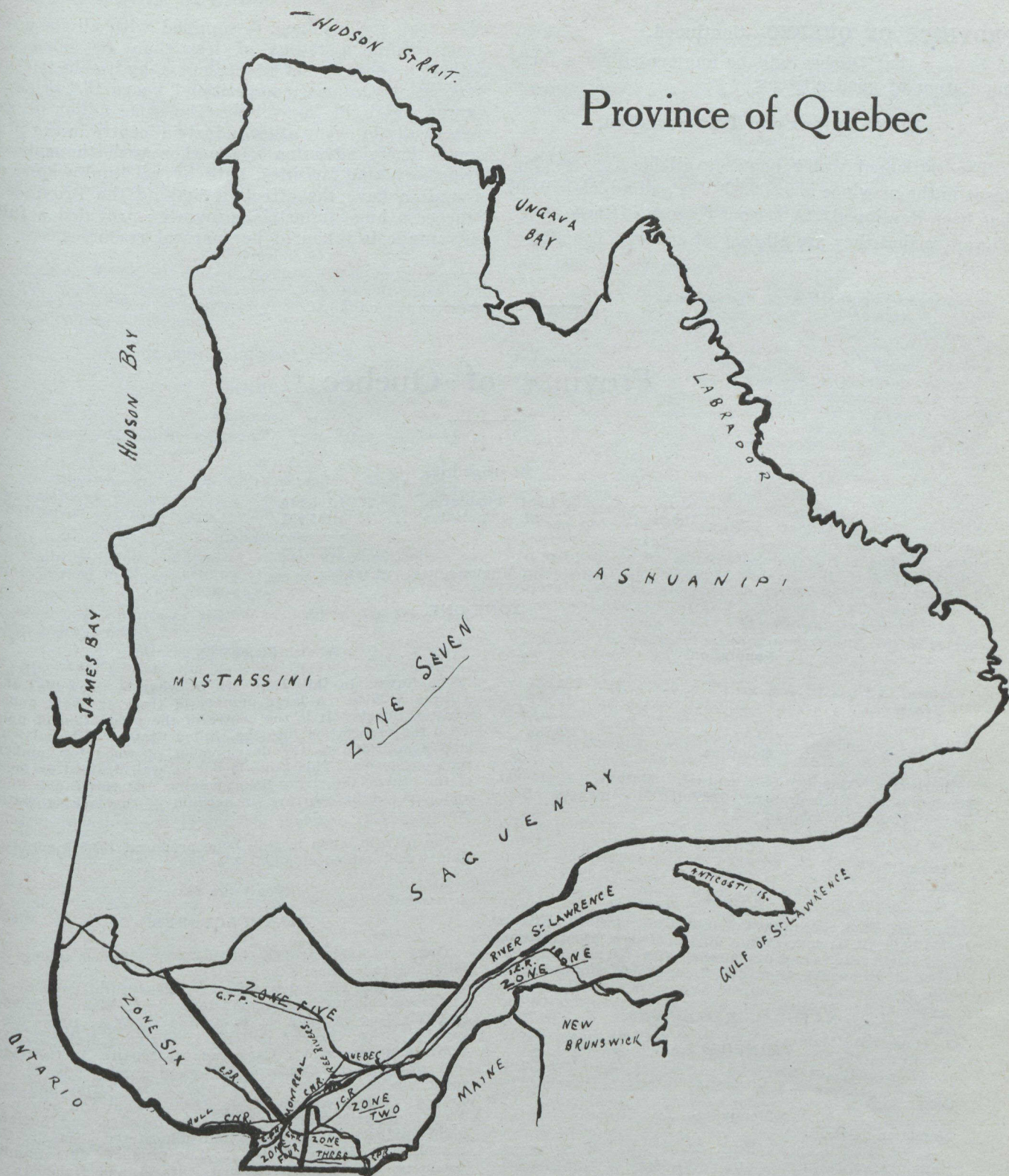
More than half of the pulp wood produced in Canada is supplied by Quebec, but the province does not get the full value of its huge output for the reason that much of it is exported in its raw state. During the last six years over twenty-eight million dollars in value of pulp wood was exported. Had this same timber been made into pulp before exporting it would have brought in the big sum of \$157,714,890. In other words the province lost by not turning this pulp wood into paper before exporting the sum of \$129,477,787.

Quebec's Minerals and Their Development.

Over eighty per cent of the world's asbestos comes from the province of Quebec, and yet Canada does not manufacture sufficient asbestos goods to supply her own wants. She exports the asbestos fibre then re-imports it again and pays 25% duty for the privilege. Another valuable mineral, especially indigenous to the province is magnesite (see page 235) which, because of the lack of enterprise is exported in its crude state, though even at that one magnesite company paid this year over 50% in dividends. Another mineral with the same story is mica, and so one might go on. To put it another way, the province of Quebec is so full of minerals which are necessary for the world's material progress, that if the same spirit of development would enter the minds of those who have the control of the mineral lands as that which determined the government to conserve the forests, the wealth that would be derived from the minerals is almost immeasurable. One thing is certain, the present Provincial Government is fully aware of the potentialities of the natural resources of Quebec, and has shown itself ready to encourage every legitimate enterprise that will help in their development.

Good Roads a Factor.

Good roads to the extent of over \$15,000,000 in cost have been built in every part of the province—and such a large sum has never been spent at any one time in any other province in Canada or even in any of the states to the south of us—and last session an additional \$5,000,000 was voted for more road construction. This is truly helping the farmer to decrease the costs of his produce, and the manufacturer his products, and has been the means of bringing in over 7,000 American motorists in one season to spy out the land, who found it good to look upon—and many stayed. About two years ago the Provincial Government added to the province the huge territory of Ungava; a land of great resources as indicated by recent surveys, and when this territory is opened out, by its nearness to the Atlantic seaboard and to Europe, there is every reason



Natural Resources of the Province

ZONE ONE.—Chromite, Manganese, Peat, Fisheries, Pulp wood.

ZONE TWO.—Asbestos, Chromite, Copper, Granite, Mineral Pigments, Pyrites, Slate, Agriculture, Pulp wood, Dairy, Lumber.

ZONE THREE.—Chromite, Copper, Granite, Marble, Natural Gas, Peat, Agriculture, Lumber, Dairy, Livestock.

ZONE FOUR.—Gravel, Sand, Shales, Agriculture, Dairy, Livestock.

ZONE FIVE.—Granite, Mineral Pigments, Lead, Zinc, Peat, Agriculture, Fruit, Pulp wood, Dairy, Lumber.

ZONE SIX.—Graphite, Feldspar, Kaolin, Magnesite, Mica, Molybdenum, Zinc, Pulp Wood, Agriculture, Dairy, Lumber.

ZONE SEVEN.—Forests, Pulp wood, (Zone largely unexplored).

PROVINCE OF QUEBEC—Continued.

to believe that Quebec will be augmented by a large population of good citizens.

Water Powers and Transportation.

The estimated water power available for development in the province is 5,600,000 H.P., of which 520,000 has been developed. A special feature of these water powers is that they are all easy of access. The city of

Montreal, for instance, is supplied with all its power from within a radius of less than 70 miles, and although there is not at present a hydro-electric system, as in Ontario, competition keeps the prices of power and light fairly low. The same might be said practically of every other industrial centre in the province. These advantages, together with the splendid transportation facilities, both by rail and water, are found to have the effect of making the Province of Quebec a huge industrial province—provided a fuller advantage is taken of her natural resources.

Province of Quebec

Municipalities.

Rural	1,084	Population	1,165,146
Urban	91	Population	1,155,991
			<u>2,321,137</u>

Area under control of Municipalities, 22,498,382 acres.

ZONE ONE.

Population.

Rural	263,913
Urban	16,872
<u>280,785</u>	

Counties.

Charlevoix, Gaspé, Bonaventure, Matane, Rimouski, Temiscouata, Kamouraska, L'Islet, Montmagny, Bellchasse, Magdalen Islands.

Cities.

Fraserville.

Towns.

Baie St. Paul, Isle aux Coudres, Tadousac, St. Etienne de Malbaie, St. Irene, Pointe au Pic, Pabos, Douglastown, Gaspé Basin, Ste. Anne des Monts, New Carlisle, Sayabec, St. Benoit, Rimouski, Mont Joli, Bonsecours, Montmagny.

NATURAL RESOURCES.

MINERALS.

Chromite.

Gaspe.

Manganese.

Magdalen Islands.

Peat.

Kamouraska, Temiscouata.

FISHERIES.

This Zone contains the Maritime fisheries of the Province in the counties of Gaspé, Bonaventure and Saguenay. The value of the catch in 1914-15 amounted to \$1,114,186, divided as follows:—

Salmon	\$113,100
Lobster	102,645
Cod	567,664
Haddock	2,658
Herring	117,923
Mackerel	63,306
Miscellaneous	86,890

FORESTS.

The forests in this Zone are in what is known as the Alleghany Zone. A large number of them are held under location tickets. It is the centre of the production of pulp wood for exportation into the United States. It is particularly favourable to the development of wood for lumber, such as spruce. This Zone is not as well drained as most of the others, the rivers being smaller and less rapid. Pulp and paper mills are rare on account of the lack of water powers.

The private lands in this Zone produced 193,576 cords of pulp wood, valued at about \$764,900.

(See Page 233).

MANUFACTURES.

There are 1,294 factories in this Zone, divided among the following industries:

Aerated and mineral waters, 1; Agricultural implements, 1; Bread, biscuits and confectionery, 1; Baking powder and flavoring extracts, 1; Boots and shoes, 1; Brass castings, 1; Brick, tile and pottery, 6; Butter and cheese, 218; Boats and canoes, 1; Cars and car repairs, 1; Carriages and waggons, 9; Carriage and waggon materials, 1; Cement blocks and tiles, 1; Cooperage, 1; Coffins and caskets, 1; Church ornaments, 1; Electric light and power, 2; Flour and grist mill products, 89; foundry and machine shop products, 6; Furniture and upholstered goods, 2; Gas machines, 2; Housebuilding, 3; Log products, 331; Lumber products, 38; Leather (tanned, curried and finished), 4; Lime, 1; Printing, publishing and bookbinding, 5; Preserved fish, 547; Starch, 1; Spoolwood, 1; Seagrass, 2; Woollen goods, 2; Woodworking and turning, 2; Wooden boxes, 1; Wool carding and fulling, 5; Wood pulp, 4.

These factories employ 10,310 persons, pay out in salaries and wages \$2,292,281; pay for material, \$7,148,950, and have an output of \$12,518,772.

Deducting the cost of material and amount paid in salaries and wages from the value of the output, these factories make a gross profit of \$3,077,541, equal to 18.45 per cent. on the capital employed.

(For Water Powers See Page 236).

PROVINCE OF QUEBEC.—Continued.

ZONE TWO.

Population.	
Rural	271,119
Urban	45,983

Counties.

Levis, Dorchester, Lotbiniere, Megantic, Beauce, Nicolet, Arthabasca, Wolfe, Compton, Yamaska, Drummond, Richmond, Frontenac.

317,102

Cities.

Thetford Mines.

Towns.

Lauzon, Levis, St. Agapit, Halifax, Black Lake, Beauceville, Nicolet, Chester, Arthabasca, Victoriaville, Cookshire, East Angus, Scotstown, Pierreville, Drummondville, Richmond, Windsor, Megantic.

NATURAL RESOURCES.

MINERALS.

Asbestos.

Counties—Megantic, Richmond. (See table "Asbestos.")

Chromite.

Counties—Megantic, Wolfe, Richmond. There are 17 mines being worked in these counties, three of which did not report any production for 1915.

Copper.

Counties—Wolfe, Richmond. There are three mines being worked in these counties.

Granite.

Counties—Frontenac, Richmond. There are four quarries being worked.

Mineral Pigments (Ochre).

Nicolet.—There is one mine at Gentilly, but there was no report for 1915.

Pyrites.

Wolfe.—There are two mines, one at Weedon and one at Stratford.

Slate.

Richmond.—There are two quarries, one in Shipton Township and one in Melbourne Township.

MANUFACTURES.

There are 1,330 factories in this Zone, distributed among the following industries:—

Aerated and mineral waters. 5; Agricultural implements, 2; Asbestos. 1; Bread biscuits and confectionery, 2; Boots and shoes. 2; Brick, tile and pottery; Butter and cheese. 734; Boilers and engines, 2; Boats and canoes, 1; Brooms and brushes. 1; Boot and shoe supplies, 1; Clothing (men's custom), 8; Clothing (men's factory). 4; Clothing (women's custom), 1; Cars and car repairs, 3; Carriages and waggons. 9; Carriage and wagon materials, 1; Cement blocks and tiles 1; Combs, 1; Church ornaments. 2; Clothespins. 1; Dyeing and cleaning, 1; Drugs, 2; Electric light and power. 7; Explosives, 1; Flour and grist mill products, 72; foundry and machine shop products, 15; Fruit and vegetable canning, 1; Furniture and upholstered goods, 6; Harness and saddlery. 2; Housebuilding, 8; Log products, 310; Lumber products, 50; Leather (tanned, curried and finished). 3; Lasts and pegs. 1; Leather goods. 1; Monuments and tombstones 1; Mattresses and Spring beds, 2; Men's furnishings, 1; Matches 1; Patent medicines, 1; Printing, publishing and bookbinding. 3; Preserved fish, 6; Paper, 3; Ships and ship repairs, 4; Stationery, 1; Tobacco, 1; Window blinds and shades. 2; Woodworking and turning, 1; Wooden boxes, 6; Wool carding and fulling, 14; Wax candles, 2.

(For Water Power See Page 236).

ZONE THREE.

Population.	
Rural	138,914
Urban	61,696

Counties.

Stanstead, Brome, Sherbrooke, Missisquoi, Shefford, Bagot, Richelieu, St. Hyacinthe, Rouville, Iberville.

Cities.

Sherbrooke, St. Hyacinthe, Sorel.

Towns.

Hatley, Stanstead, St. Hermenegilde, Coaticook, Magog, Brome, Farnham, Sutton, Compton, Bedford, Actonvale, St. Ours, Marieville, Iberville.

NATURAL RESOURCES.

MINERALS.

Chromite.

Counties—Sherbrooke. There is one mine being worked in Oxford Township.

Copper.

Counties—Brome, Sherbrooke. There are six mines in operation in these counties.

Granite.

Counties—Iberville, Stanstead, Shefford. There are 14 quarries being worked in these counties.

Marble.

Counties.—Missisquoi, Shefford. There are two quarries in operation, one at Phillipsburg and one at South Stukely.

Natural Gas.

Counties—St. Hyacinthe. There are a number of producing wells situated at St. Barnabe.

Peat.

Counties.—St. Hyacinthe, Iberville. Operations have been carried on in the County of Iberville, near St. Brigide, but no production was reported for 1915.

MANUFACTURES.

3; Bread, biscuits and confectionery, 3; Blankets and sweat-pads, 1; Boots and shoes, 6; Brick, tile and pottery, 7; Bridges (iron and steel), 1; Butter and cheese, 282; Bolders and engines, 4; Boats and canoes, 2; Boot and shoe supplies, 1; Beekeepers' supplies, 1; Clothing (men's custom), 10; Clothing (women's custom), 1; Clothing (women's factory), 1; Cars and car repairs, 3; Carriages and waggons, 8; Cement blocks and tiles, 1; Cooperage, 1; Coffins and caskets, 2; Corsets, 1; Cut stone, 2; Cutlery, axes and tools, 3; Cottons and cotton goods, 1; Carpets, mats and rugs, 1; Combs, 3; Clothes pins, 1; Dyeing and cleaning, 1; Dies and moulds, 1; Drugs, 3; Electric light and power, 8; Explosives, 1; Flour and grist mill products, 52; Foundry and machine products, 12; Furniture and upholstered goods, 6; Fertilizers, 1; Gas, lighting and heating, 2; Gloves and mittens, 3; Glass (stained, cut and ornamental) 1; Harness and saddlery, 2; Hats, caps and furs, 1; Housebuilding, 7; Hosiery and knit goods, 3; Iron and steel products, 1; Jewellery and repairs, 2; Liquors (malt), 1; Liquors (vinous), 1; Liquors (distilled), 1; Log products, 84; Lumber products, 37; Leather (tanned, curried and finished), 4; Lime, 4; Lightning rods, 1; Leather goods, 1; Laces and braids, 1; Leather belting and hose, 1; Musical instruments, 1; Monuments and tombstones, 2; Men's furnishings, 2; Maple sugar, 5; Needles, 1; Patent medicines, 1; Plumbing and tinsmithing, 7; Printing, publishing and bookbinding, 6; Rubber and elastic goods, 2; Scales, 2; Slaughtering and meatpacking, 3; Ships and ship repairs, 3; Smelting, 1; School supplies, 1; Saws, 1; Stationery, 1; Safes and Vaults, 1; Tobacco, 7; Woollen goods, 3; Woodworking and turning, 2; Wooden boxes, 5; Wool carding and fulling 1; Woodenware, 1.

These factories employ 12,776 persons, pay out \$5,161,607 in salaries and wages, pay \$15,999,958 for material, and have an output of \$28,181,409. Their aggregate capital amounts to \$22,742,320. Deducting the amount paid in salaries and wages, and the most of material from the output, there remains a gross profit of \$7,019,850, equal to 30.86 per cent. on the capital employed.

THERE ARE 663 FACTORIES IN THIS ZONE, DISTRIBUTED AMONG THE FOLLOWING INDUSTRIES:

Aerated and mineral waters, 5; Agricultural implements,

PROVINCE OF QUEBEC—Continued

ZONE FOUR.

Population.

Rural	71,813
Urban	38,705
	<hr/>
	110,518

Counties.

Vercheres, Chambly, Laprairie, Chateauguay, Beauharnois, Huntingdon, St. Johns, Napierville.

Cities.

Valleyfield.

Towns.

Beloil, Greenfield Park, St. Lambert, Longueuil, Montreal South, Chambly Basin, Chambly Canton, Laprairie, Delery, Chateauguay, Beauharnois, Hemmingford, Ormstown, St. Johns, Napierville.

NATURAL RESOURCES.

MINERALS.

There are sand and gravel pits at Ormstown and Napierville.

At Laprairie the shales suitable for the manufacture of brick are utilized by two large brick plants.

MANUFACTURES.

There are 280 factories in this Zone, distributed over the following industries:

Aerated and mineral waters, 2; Agricultural implements, 3; Boots and shoes, 4; Brick tile and pottery, 1; Butter and cheese, 176; Boilers and engines, 3; Boats and Canoes, 5; Clothing (men's custom), 4; Clothing (women's custom), 1; Carriages and waggons, 7; Cooperage, 1; Cut stone, 1; Condensed milk, 1; Cutlery, axes and tools, 1; Cottons and cotton goods, 1; Electrical apparatus, 2; Electric light and power, 1; Flour and grist mill products, 6; Foundry and machine shop products 7; Fruit and vegetable canning, 2; Furniture and upholstered goods, 2; Fountain pens, 1; Hats, caps and furs, 2; Housebuilding, 5; Hay (baled), 1; Hay presses, 1; Log products, 18; Lumber products, 14; Monuments and tombstones, 1; Printing, publishing and bookbinding, 2; Sewing machines, 1; School supplies, 2; Silk and silk goods, 1; Umbrellas, 1; Vinegar and pickles, 1; Woollen goods, 1; Wool carding and fulling, 1; Wax candles, 3; Woollen yarns, 1.

These industries employ 5,408 persons, pay out in salaries and wages, \$2,193,059, have an aggregate capital of \$12,252,216, pay for material \$5,177,956, and produce an output of \$10,406,211. Deducting the amount paid in salaries and wages, and the cost of material from the output, there remains a gross profit of \$3,035,196, equal to 24.77 per cent. on the capital employed.

ZONE FIVE.

Population.

Rural	230,082
Urban	912,377
	<hr/>
	1,142,459

Counties.

Montmorency, Quebec, Portneuf, Champlain, St. Maurice, Berthier, Joliette, Montcalm, L'Assomption, Terrebonne, Laval, Hochelaga, Maskinonge.

Cities.

Montreal, Quebec, Three Rivers, Maisonneuve, Westmount, Outremont, Verdun.

Towns.

Montmorency, Beauport, St. Casimir, St. Raymond, Grand Mere, La Tuque, St. Tite, Shawinigan Falls, Berthier, Joliette, L'Assomption, Laurentides, Ste. Therese, Ste. Agathe, St. Jerome, Terrebonne, Laval-des-Rapides, St. Rose, St. Pierre, Pointe aux Trembles, St. Leonard de Port Maurice, St. Michel, Louisville.

NATURAL RESOURCES.

MINERALS.

Granite.

Portneuf, Hochelaga, St. Maurice. There are numerous quarries in the vicinity of Montreal; at Riviere a Pierre, in Portneuf County and at Shawinigan Falls in St. Maurice County.

Mineral Pigments. (Ochre).

Champlain county. There are three plants working in this county not far from Three Rivers.

Lead, Zinc.

Portneuf. There are three mines being operated. In Montauban township, one of which did not report any production for 1915.

Peat.

Berthier, Joliette, L'Assomption. There are workable peat bogs in these three counties

MANUFACTURES

This Zone is preeminently the manufacturing District of the Province. Included within its boundaries are the manufacturing centres of Montreal, Quebec, Three Rivers and Maisonneuve.

There are 2,236 factories in the Zone, divided among the following industries:

Artificial Limbs and trusses, 1; Automobiles, 1; Aluminium, 1; Auto, repairs and accessories, 2; Aerated and mineral waters, 21; Agricultural implements, 4; Awnings tents

and sails, 5; Asbestos, 2; Artificial stone, 2; Bread biscuits and confectionery, 65; Baking powder and flavouring extracts, 7; Blacking, 5; Boots and shoes, 82; Brass castings, 6; Brick tile and pottery, 12; Bridges (Iron and steel), 1; Buttons, 3; Butter and cheese, 412; Boilers and engines, 10; Bicycles, 1; Blacksmithing, 5; Babbit metal, 1; Boats and Canoes, 3; Brooms and Brushes, 7; Boots and shoe supplies, 8; Blueprint paper, 1; Batting, 1; Clothing (men's custom), 77; Clothing (men's factory), 82; Clothing (women's custom), 52; Clothing (women's factory), 24; Cars and car repairs, 11; Carriages and Waggons, 41; Cement blocks and tiles, 8; Cooperage, 4; Coffees and Spices, 6; Coffins and Caskets, 4; Corsets, 2; Cut stone, 22; Confectioners supplies, 1; Cordage, 1; Carbide, 1; Corks, 3; Cutlery axes and tools, 5; Cottons and cotton goods, 8; Chewing Gum, 1; Church ornaments, 2; Cotton bags, 4; Costumier and hair-dressing, 1; Cotton and wool waste, 1; Dyeing and cleaning, 19; Dies and moulds, 2; Drugs, 8; Dyes and colours, 1; Electrical apparatus, 13; Electric Light and Power, 17; Elevators, 3; Flour and Grist Mill products, 59; Fruit and vegetable canning, 6; Fertilizers, 2; Foundry and machine shop products, 71; Furs (dressed), 3; Fringes, Cords and tassels, 3; Fancy goods, 3; Flour paste, 1; Glass, 2; Gas Lighting and heating, 1; Gas machines, 1; Gloves and mittens, 11; Glue, 1; Glass (stained cut and ornamental), 4; Harness and Saddlery, 8; Hats, caps and furs, 66; Housebuilding, 43; Hosiery & knit goods, 3; interior decorations, 9; Inks, 1; Iron and steel products, 10; Jewellery and repairs, 17; Jewellery cases, 1; Liquors (Malt), 10; Liquors (Vinous), 1; Liquors (Distilled), 2; Log products, 21; Lumber products, 89; Leather (tanned curried and finished), 26; Lime, 8; Lasts and pegs, 3; Leather goods, 8; Laces and braids, 1; Metallic roofing, 2; Macaroni and vermicelli, 1; Musical instruments, 6; Monuments and tombstones, 6; Mattresses and Spring beds, 7; Mirrors and plate Glass, 7; Miscellaneous, 1; men's furnishings, 10; Malt, 1; Matches, 1; Oils, 5; Optical goods, 3; Oxygen gas, 1; patent medicines, 8; Plumbing and tinsmithing, 33; Plumbers supplies, 2; printing publishing and bookbinding, 93; Paints and varnishes, 7; pins, 1; Prepared foods, 1; Portland cement, 1; Plaster, 1; Pipe and boiler covering, 1; Photographic materials, 2; Picture frames, 4; Patterns, 2; paper, 15; Paper boxes & bags, 15; Printer's supplies, 3; Prepared flour, 2; Railway supplies, 2; Roofing, 7; Rubber clothing, 9; Refrigerators, 1; Scales, 1; Slaughtering and meatpacking, 14; Sugar refining, 2; Smelting, 1; Soap, 4; Spraymotors, 1; Sewing machines, 1; Stove polish, 1; Saws, 1; silver-smithing, 4; Sporting goods, 3; stamps and stencils, 2; stationery, 5; Signs, 5; Show cases, 1; Safes and vaults, 1; Silk and silk goods, 2; Stereotyping and electrotyping, 2; statuary, 2; Tobacco, 57; Thread, 1; Time recorders, 1;

PROVINCE OF QUEBEC, (Continued).

Textiles (dyeing and finishing), 1; Typewriters and supplies, 2; typefounding, 1; Umbrellas 2; Vinegar and pickles 4; Vacuum cleaners 2; vaseline 1; Window Blinds and shades, 1; Woolen goods, 2; Woodworking and turning, 2; Wooden boxes, 12; Washing compounds, 3; Wool carding and fulling, 5; Wood pulp, 1; Window fixtures, 1; Wallpaper, 2; Wire, 2.

These factories employ 101,412 persons, pay out in salaries and wages \$48,513,029, have an aggregate capital of \$197,222,083, pay for material \$121,851,130 and have an output of \$240,165,713. Deducting the amount paid for salaries and wages and the cost of material from the value of the output there remains a gross profit of \$69,801,554, equal to 35.30% on the capital employed.

(For Water Powers See Page 236).

ZONE SIX.

Population.	
Rural	135,791
Urban	61,201
Total	196,992

Counties.

Jacques Cartier, Two Mountains, Argenteuil, Soulanges, Vaudreuil, Pontiac, Ottawa, Labelle.

Cities.

Lachine, Hull.

Towns.

Beaconsfield, Cartierville, Dorval, Pointe Claire, St. Laurent, St. Anne de Bellevue, St. Scholastique, St. Eustache, Grenville, Lachute, Rigaud, Aylmer, Buckingham, Masson, Montebello, Mont Laurier, Papineauville.

NATURAL RESOURCES.

MINERALS.

Graphite.

Argenteuil, Labelle, Ottawa. There are nine operating mines in these counties, five of which did not report any production in 1915.

Feldspar.

Argenteuil, Labelle, Ottawa. There are four mines in these counties, two of which did not report any production in 1915.

Kaolin.

Labelle. There is a mine working near St. Remi d'Amherst.

Magnesite.

Argenteuil. There are four mines in operation in the township of Grenville. The output of these mines in 1915 was 14,779 tons, and is believed to have reached 400 tons per day by the end of 1916.

Mica.

Argenteuil, Labelle, Ottawa, Pontiac. These counties, with the counties of Lanark, and Frontenac, in Ontario constitute the Mica producing district of America. There are numerous producing mines in the different parts of the counties.

Molybdenite.

Pontiac. Since the beginning of the war a number of properties have been developed in Ontario, British Columbia and Quebec. The most important of these is at Quyon on the Ottawa River about 33 miles west of Ottawa. The output of these properties is controlled by the Imperial Munitions Board

Zinc.

Pontiac. Zinc has been produced at Calumet Island, but the mine was idle during 1915.

Manufactures.

There are 555 factories in this Zone, distributed among the following industries:

Automobile repairs and accessories, 2; Aerated and mineral waters, 1; Agricultural Implements, 1; Asbestos, 1; Bread biscuits and confectionery, 6; Brick tile and pottery, 2; Bridges (Iron and Steel), 1; Butter and Cheese, 205; Bells, 1; Clothing (men's custom), 2; Clothing (men's factory), 1; Cars and car repairs, 3; Carriages and waggons, 3; Cut stone, 3; Cutlery Axes and tools, 1; Cottons and cotton goods; Carbonic Acid Gas, 1; Dyeing and cleaning, 2; Drugs, 1; Electrical apparatus, 1; Electric Light and Power, 16; Explosives, 1; Flour and grist mill products, 20; Foundry and Machine shop products, 4; Fruit and vegetable canning, 1; Furniture and upholstered goods, 2; Gas lighting and heating, 1; Glue, 1; Housebuilding, 5; Hosiery and knit goods, 1; Iron and Steel products, 1; Liquors (malt), 2; Log products, 176; Lumber products, 33; Leather (tanned, curried and finished), 3; Lime, 1; Leather goods, 1; Monuments and tombstones, 2; Mattresses and Spring beds, 3; Men's furnishings, 1; Mica, 5; Oils, 1; Pottery (painted), 2; Phosphorous, 1; Printing publishing and bookbinding, 4; Portland cement, 1; Preserved fish, 1; Paper, 2; Railway supplies, 1; Roofing, 1; Rice (cleaning and polishing), 1; Slaughtering and meatpacking, 1; Ships and ship repairs, 1; Shoddy, 1; Sausage casings, 1; Tobacco, 1; Window blinds and shades, 1; Woolen goods, 3; Woodworking and turning, 5; Wool carding and fulling, 1; Wire, 1.

These factories employ 13,996 persons, pay out \$6,650,144 in salaries and wages, pay for material \$19,265,299, have an output of \$34,211,938, and employ an aggregate capital of \$42,659,505. Deducting the amount paid in salaries and wages and the cost of material from the amount of the output there remains a gross profit of \$8,296,495, equal to 19.44% on the capital employed.

(For Water Powers See Page 236).

ZONE SEVEN.

Population.	
Rural	57,774
Urban	14,897
Total	72,671

Counties.

Saguenay, Chicoutimi, Lake St. John, Temiscaming and the Districts of Abitibi, Mistassini and Ashuanipi.

Towns.

Chicoutimi, Jonquieres, Roberval.

The major portion of this Zone is practically unexplored, and includes that portion of the Province known as "New Quebec", which was added to its territory in 1912. The area of the territory then transferred from Federal to Provincial jurisdiction amounted to 351,780 sq. miles.

The populated area is limited to the counties of Chicoutimi, Lake St. John and Temiscaming, Saguenay.

The whole district is remarkably rich in water powers, and is well suited for the development of the pulp and paper industries.

Manufactures.

There are in this Zone 226 factories, divided among the following industries:

Butter and cheese, 120; Boilers and engines, 1; Cement blocks and tiles, 1; Electric light and power, 2; Flour and grist mill products, 15; Foundry and machine shop products, 1; Log products, 63; Lumber products, 12; Lime, 2; Monuments and tombstones, 1; Printing publishing and bookbinding, 1; Woodworking and turning, 1; Wooden boxes, 1; Wood pulp, 5.

These factories employ 2,632 persons, pay out in salaries and wages \$945,569, pay for material \$1,962,735, and have an output of \$3,762,272. The aggregate capital employed is \$12,033,864. Deducting the amount paid in salaries and wages and the cost of material from the output, there remains a gross profit of \$853,868, equal to 7.09% on the capital employed.

(For Water Powers See Page 236).

Pulp Industry of Canada

The Pulp-Wood industry is one of the most important in the Dominion of Canada, dealing with the manufacture of our raw material, being one of the few industries showing an increase in spite of the disturbances caused by the war.

The manufacture of the Pulp-Wood into pulp in Canada, while on the increase, reached in 1915 only 59.7% of the total production. In 1910 the percentage was 38.8%; in 1911, 44.2%; in 1912, 46.9% in 1913, 51.7% and in 1914, 55.7%.

The following table shows the figures for 1914 and 1915. It will be seen that in 1915 the production was 2,355,550 cords, valued at \$15,590,330, of which 1,405,836, valued at \$9,426,217 was manufactured in Canadian Pulp Mills and 949,714 cords, valued at \$6,164,113, was exported for manufacture.

Canadian Pulpwood Exported Unmanufactured vs. That Manufactured in Canada, 1914 and 1915.

	Quantity.	Value		
		Cords.	Value.	P.C. Dist.
Total all Provinces.				
Production	2,196,884	\$14,770,358	\$6.72	100.0
Manufacture	1,224,376	8,089,868	6.60	55.7
Export	972,508	6,680,490	6.87	44.3
1915.				
Production	2,355,550	\$15,590,330	\$6.62	100.0
Manufacture	1,405,836	9,426,217	6.71	59.7
Export	949,714	6,164,113	6.49	40.3

Of the Wood-Pulp Manufactured in Canada in 1915, we exported 364,170 tons, valued at \$9,279,414, almost entirely to the United States to which country we sent 318,498 tons valued at \$8,357,747. In 1914, we exported 424,883 tons, and in 1913, 298,169 tons.

The Provinces of Ontario, Quebec and New Brunswick have taken a step in the right direction by providing that all pulp-wood cut on Crown Lands must be manufactured in Canada. Nova Scotia and British Columbia have not yet dealt with this phase of the question.

There were forty-seven firms in Canada operating Pulp mills, in 1915, divided amongst the Provinces as follows:

Quebec	24
Ontario	15
Nova Scotia	5
New Brunswick	4
British Columbia	2

Imports.

Turning to the other side of the picture, we find that we imported during the years, 1914 and 1915, wood pulp to the value of \$1,204,784, mainly from the United States.

The following table shows the imports by countries during those years.

Imports of Wood-pulp, 1914 and 1915. Total value, per cent distribution and countries from which imported

Total Value of Imports.	1914.		1915.	
	Value.	P.C.	Value.	P.C.
	\$424,601	100.0	\$423,331	100.0
United States	216,361	51.0	316,843	74.8
Sweden	136,540	32.2	105,743	25.0
Norway	61,254	14.4	.....	.....
Switzerland	5,285	1.2	.....	.....
Great Britain	4,375	1.0	745	0.2
Austria Hungary	786	0.2	.....	.....
Germany	.....	.....	.....	.....

Agriculture in Quebec

The total value of the agricultural products of the Province for the year 1915, was \$104,683,000.

This was divided among the different crops as follows:—

Hay and Clover	\$58,507,000
Oats	23,200,000
Potatoes	9,631,000
Corn	2,460,000
Barley	1,939,000
Rye	162,000
Peas	998,000
Beans	327,000
Buckwheat	2,157,000
Mixed Grains	2,188,000
Flax	15,000
Turnips	1,132,000
Fodder Corn	1,872,000
Lucerne (Alfalfa)	95,000

\$104 683 000

From the above it will be seen that the first three products listed, hay and clover, oats and potatoes, account for \$91,338,000, or 87.2 per cent. of the total, hay and clover alone forming 55.89 per cent. of the total crops.

The area devoted to the total crops in 1915 was 4,901,760 acres, and to the three principal crops, (hay and clover, oats and potatoes) 4,439,000 acres.

The acreage used for hay was 2,922,000 acres, or 59.61 per cent. of the total area under crop in the Province.

To use over one-half of the cultivated soil of the Province for hay seems to be an extravagant and wasteful use of the land, and altogether out of proportion to the value of the crop produced. The reason is no doubt the proportionately small amount of labour and trouble required to grow and harvest such a crop.

Had one half of the area devoted to hay been used for potatoes and turnips, the production would have been as follows:—

Used for hay	2,922,000 acres.
One half of hay acreage	1,461,000 acres.
Potatoes—One half of above	730,500 acres.
(Average production per acre, 149.66 bush.)	

Will produce 109,381,500 bushels at 55c.	60,132,325
Turnips—One half of above .. 730,500 acres. (Average production per acre 308 bushels).	
Will produce 224,994,000 bushels at 36c.	80,997,840
	<hr/>
	\$141,130,165

This would still leave for hay, 1,461,000 acres, which would produce on the basis of the average production for 1915 (1.26 tons per acre), 1,841,000 tons, at \$15.89 per ton..

A total of ..	\$170,383,665
Instead of \$58,507,000, the value of the production, when hay is grown on the whole acreage ..	57,507,000
A difference of ..	\$111,876,665
	<hr/>
	\$111,876,665

These two vegetables, potatoes and turnips, have been used merely as an example, and to show the enormous loss caused to the Province by devoting so large an area to hay, instead of using the soil for more productive crops.

DAIRY PRODUCTS.

The total dairy products of the Province in 1915 were valued at \$18,471,501, viz:

Butter—30,625,936 lbs.	\$10,899,810
Cheese—54,217,103 lbs.	7,571,691
	<hr/>
	\$18,471,501

This butter and cheese was produced in 2,058 factories, distributed over the different districts of the Province.

Factories making butter only	6694
Factories making cheese only	935
Factories making butter and cheese	519

In addition to the above, there was shipped to the United States cream and milk to the value of \$1,455,420.

These exports amounted to only \$150,782 in 1910. The increase since that date is due to the modifications made in the United States Customs tariff in 1911.

Forest Products of Quebec

The forest wealth of the Province is estimated at \$600,000,000 as follows:

White and red pine	\$200,000,000
Spruce and balsam fir	250,000,000
Pulp-wood	100,000,000
Hard wood (birch, maple, etc.),	25,000,000
Cedar	25,000,000
	<hr/>
	\$600,000,000

Total production in 1915 \$29,452,810

Forests in Quebec are divided into five classes, according to their tenure, as follows:—

	acres:
1—Private forests	6,000,000
2—Forests leased as timber limits	44,500,000
3—Forests on lots under location tickets	1,300,000
4—Township forest reserves	200,000
5—Forests not in timber limits	78,000,000
Forest area of Quebec, acres	<hr/>
	130,000,000

Private Forests.

These come from the old Seigniories, lands sold to settlers by the Government, or granted to railways in aid of their construction. The greater part of these lie in the central valley of the St. Lawrence.

Forests Leased as Timber Limits.

These comprise all forests usually called "timber limits" leased to license holders at sundry intervals. They are leased by public auction after thirty days' notice.

These are all situated beyond the villages in the basin of the St. Lawrence.

The regulations covering the use of these limits are very stringent.

Forests on Lots under Location Tickets.

These are lots sold by the Government to settlers every year, containing on an average 100 acres. The purchaser may obtain a full title under Letters Patent after five years by fulfilling certain conditions as to clearing, cultivation, etc. He may not cut any timber until he has obtained Letters Patent.

There are now about 10,000 lots under location ticket.

Forests Not in Timber Limits.

These extend beyond those under license and lie in the basin of the St. Lawrence, as well as in that of Hudsons Bay. No cutting has been done on these territories.

The timber in these forests consists chiefly of spruce, balsam fir, poplar and banksian pine; the quantity per acre varies from five to nine cords.

This region can furnish millions of cords of pulpwood, and as there are considerable water powers, the conditions are most favourable to the erection of pulp and paper mills.

Township Forest Reserves.

These are portions set apart out of the uncultivable vacant lands in certain townships to form forest reserves. They are destined to supply timber to the inhabitants of the neighbouring villages, subject to certain restrictions.

The lumber production for the year 1915 amounted to 1,078,787 ft. B.M., valued at \$17,784,415, of which spruce formed 55.6 per cent.; balsam fir, 15.8 per cent., and white pine, 14.6 per cent. These three species accounting altogether for 86. per cent. of the total cut.

Lath production, 55,204 thousand, valued at \$147,395.

Shingles, 574,797 thousand, valued at \$1,264,553.

Pulpwood.

Total production, 1915—1,322,231 cords, valued at \$8,338,525.

Quebec supplied in 1915, more than one half of the pulp wood produced in Canada.

Of the total pulp wood produced in the Province, only 697,961 cords were manufactured here, or slightly more than one half; the remainder was exported as raw material. The wood manufactured produced 561,793 tons of pulp, of which 425,626 were mechanical and 136,167 chemical.

The following table shows for the six years, from 1910 to 1915, that portion of the pulp wood production of the Province exported in a raw state, and the loss which has been sustained by not manufacturing it locally.

Table of Pulp Wood Produced in the Province of Quebec, Which was Exported Without being Manufactured, for the Six Years from 1910 to 1915, showing its value (1) as raw material, (2) after being manufactured into pulp and (3) after being manufactured into paper.

Year.	Quantity. Cords.	Value as raw material.	Value, manu- factured into Pulp.	Value, manu- factured into Paper.
1910 ..	779,000	5,090,000		
1911 ..	636,136	3,958,423		
1912 ..	751,855	4,985,218		
1913 ..	802,260	5,387,476		
1914 ..	687,421	4,734,494		
1915 ..	624,269	4,111,292		
		<hr/>		
		4,280,941	28,267,103	
		Deduct value as raw material ..	88,495,220	157,714,890
			28,267,103	28,267,103
			<hr/>	<hr/>
Amount lost to Province by manufacturing		60,228,117		129,447,787

In compiling the above figures it has been assumed that the pulp wood exported (4,280,941 cords), would produce pulp in the same proportions as that manufactured in the Province. On this basis this wood would produce 3,504,762 tons, of which 75 per cent. would be mechanically ground and 25 per cent. chemically manufactured.

Story of the Pulp Wood Exported from the Province of Quebec for Six Years

Value of pulp wood exported from Province—\$28,267,103.

Value if same had been manufactured locally into PULP, \$88,495,220.

Value if same had been manufactured locally into PAPER, \$157,714,890.

Gain to Province if Pulp Wood exports had been MANUFACTURED INTO PULP, \$60,228,117.

Gain to Province if Pulp Wood exports had been MANUFACTURED INTO PAPER, \$129,447,787.

New Roads and New Industries

What might be termed a romance in road development is the propaganda of the Quebec Government during the last six years—a romance that offers delightful situations of co-ordination between the province and local authorities. The story in short is that in 1911 the government determined to build throughout the province a system of main highways and contributory roads that would not only tap the vast resources of the country, but would enable the farmers to market their produce at the lowest transportation cost, and in addition, allow the urban populations to enjoy the life of the country. As part of the scheme the rural municipalities were encouraged to do their share by the promise that for every dollar they spent in road building the government could contribute fifty cents, or one half.

The appropriation to carry out this great work was \$15,000,000, spread over a number of years. This sum has now been spent together with an additional \$1,537,806 up to the end of 1916. For this expenditure the provincial authorities have control of 1,487 miles of permanent roads, including a splendid system of five state highways of over 300 miles, connecting the chief centres. Nor is this all. Many miles of provincial roads running through the smaller urban municipalities have been changed from earth to macadam, and made permanent; the municipalities contributing at the rate of \$1,000 per mile, so altogether one is not far wrong in saying that the Province of Quebec has now over 2,000 miles of new roads—a remarkable record when it is considered that at first the people looked askance at the new order of things, and would not help. But education by placards (see photo) and circulars gradually convinced the people of the splendid opportunities offered them to improve their roads. To-day, in the words of Deputy Minister Michaud, "a new spirit has been created that will no longer suffer trails to be called good roads."

In addition to \$5,000,000 extra being voted by the last session of the legislature for new roads, an act was passed giving the minister special powers for the proper maintenance of the roads built at so much sacrifice of energy, meaning that the work of the past six years will not be lost.

This expenditure of \$20,000,000 on the building of roads will prove one of the best and soundest investments that

SIBERIA AS A FIELD FOR CANADIAN MANUFACTURES.

The question that must arise in the exporter's mind is would it pay to send Canadian goods direct to Siberia? One answers yes emphatically for there is no gainsaying the fact that a ready and profitable market is always waiting in Siberia for Canadian goods.

To give an idea of the opportunities in Siberia it would be well to state that the country has practically no factories and no manufactures, that every article necessary to human life and comfort, every implement from the common plough to the most complicated machinery necessary for mining, or saw mills at the farm has to be imported and it seems absurd to see farming implements which were intended for countries which farm on a small scale, but which were never meant for a country where farming is necessarily done on a larger scale, and when one considers that the reason these implements are there is that England and Germany, previous to the war, had no competition, surely it is up to the Canadian manufacturers and exporters to see that this country is better represented. Siberia is growing side by side with Canada, which means that in a decade she will have a population equal to that of the United States and those who are in the field first will reap rewards beyond their most sanguine hopes, and if Canada is to grow commercially she will be compelled to find a larger field for her manufactures than even her own market. Canadian commercial men have never lacked enterprise and they cannot afford to lose a market that is almost at their own doors, — Frederick Wright.

Les Bons Chemins

Avantages offerts par le GOUVERNEMENT de la PROVINCE de QUÉBEC pour l'amélioration des chemins de Campagne

Entretien, Confection et amélioration des chemins

Premier avantage.

Une municipalité rurale et locale qui met ses chemins à la charge du conseil peut recevoir du gouvernement du Québec, chaque année, pour travaux qu'elle dépense \$3000

Deuxième avantage.

Une municipalité rurale et locale qui met ses chemins à la charge du conseil peut recevoir du gouvernement du Québec, chaque année, pour travaux qu'elle dépense \$4000

Troisième avantage.

Une municipalité de village qui met ses chemins à la charge du conseil peut recevoir du gouvernement du Québec, chaque année, pour travaux qu'elle dépense \$5000

Quatrième avantage.

Une municipalité de village qui met à la charge du conseil son chemin principal seulement peut recevoir du gouvernement du Québec, chaque année, pour travaux qu'elle dépense \$3500

Gravelage.

Cinquième avantage.

Une municipalité rurale qui dépense d'abord \$8000 pour l'entretien de tous ses chemins peut ensuite recevoir du gouvernement du Québec, chaque année, pour travaux de gravelage dans un chemin ou partie de chemin pour qu'elle dépense \$1000 pour gravelage

Sixième avantage.

Une municipalité de village qui fait graveler son chemin principal peut recevoir du gouvernement du Québec, chaque année (jusqu'à ce que le chemin principal soit tout gravelé) pour qu'elle dépense \$1500

Macadam

Septième avantage.

Outre les \$5000 mentionnés dans le premier avantage, ou les \$2000 mentionnés dans le deuxième avantage, une municipalité rurale et locale peut recevoir, chaque année, du gouvernement du Québec, pour macadamisation d'un chemin ou de partie de chemin pour qu'elle dépense \$2000

Huitième avantage.

Outre les \$2000 mentionnés dans le troisième avantage ou les \$1000 mentionnés dans le quatrième avantage, une municipalité de village qui fait macadamiser son chemin principal peut recevoir chaque année, du gouvernement du Québec, pour qu'elle dépense \$2500

Tuyaux en Béton

Neuvième avantage.

Outre les \$2000 mentionnés dans le huitième avantage, une municipalité rurale et locale peut recevoir du gouvernement du Québec, chaque année, pour tuyaux en béton pour qu'elle dépense \$2000

Outillages pour Macadam

Dixième avantage.

Le gouvernement du Québec possède un certain nombre de concasseurs, rouleaux à vapeur, appareils de pression, pompes, arroseurs, etc., qui sont prêtés, chaque fois que cela se peut, aux municipalités qui font du macadam. Le gouvernement paie la moitié des frais de fonctionnement de ces machines et les frais de transport et d'entretien, ou une des subventions pour macadamisation.

Remarques importantes

1. Il n'y a qu'un seul cas où peut profiter des subventions du gouvernement, une municipalité qui a obtenu le statut de municipalité rurale ou locale.

2. Les explications données dans le présent circulaire sont sommaires. Pour plus de détails, il faut s'adresser au ministre de l'Agriculture ou aux conférences.

3. Si une municipalité désire profiter de quelques-uns des avantages offerts, elle ne doit pas adopter de règlement sans demander des formules au département de l'Agriculture. Elle fera ainsi un acte de soumission à ce département, sous sa surveillance. Le département fournira les formulaires nécessaires pour toutes sortes de règlements relatifs à l'amélioration des chemins, et si elle a besoin de renseignements, un secrétaire ou un maître de municipalité qui embarquera pour procéder, il n'y a qu'à s'adresser au département de l'Agriculture, qui lui fournira ce qu'il lui faut.

Empreints pour l'amélioration de la voirie

Le gouvernement soumet, cette année, à la législature, un projet de loi qui permettra aux municipalités d'obtenir des sommes nécessaires pour entreprendre des travaux de macadamisation. Cette loi permettra au planificateur par le gouvernement de tous les fonds d'amortissement de la moitié de l'intérêt, pour que cet intérêt ne s'élève pas à plus de 10% par année. Exemple: une municipalité emprunte \$10,000, le fonds d'amortissement est de \$1,000 par année et l'intérêt est de \$1,000 par année, l'intérêt total est de \$2,000 par année.

Le gouvernement accorde à payer \$500 par année pour étendre cette dette de \$10,000, mais le municipalité se chargeant du fonds d'amortissement et de la moitié de l'intérêt, le municipalité paie au plus deux à payer que \$200 par année.

Remarque

Cette municipalité qui est présente de la loi des emprunts ne peut pas profiter des avantages \$1,500 par année.

JOS.-ED. CARON,
Ministre de l'Agriculture de la Province de Québec

Québec, le 1er Mars 1917

GOOD ROADS

Advantages offered by the GOVERNMENT of the PROVINCE of QUEBEC for the Improvement of Highways.

Maintenance, Making and Improvment of roads

First advantage.

A rural or local municipality which places all its roads in charge of the Council may receive from the government of Quebec, each year, for work done on its roads, provided it spends \$3000

Second advantage.

A rural or local municipality which places all its roads in charge of the Council, except those roads, may receive from the government of Quebec, each year, for work done on its roads, provided it spends \$4000

Third advantage.

A village municipality which places all its roads in charge of the Council may receive from the government of the province of Quebec, each year, for work done on its roads, provided it spends \$5000

Fourth advantage.

A village municipality which places in charge of the Council its main roads only, may receive from the government of the province of Quebec, each year, for work done on its roads, provided it spends \$3500

Gravelling

Fifth advantage.

A rural or local municipality which spends first \$8000 for the maintenance of all its roads, may also receive from the government of the province of Quebec, each year, for graveling of all its roads, provided it spends \$1000 for graveling

Sixth advantage.

A village municipality which gravel its main roads may receive from the government of the province of Quebec, each year, for the work done on its roads, provided it spends \$1500 for graveling

Macadamizing

Seventh advantage.

Out of the \$5000 mentioned in the first advantage, or the \$2000 mentioned in the second advantage, a rural or local municipality may receive, each year, from the government of the province of Quebec, for macadamizing a road or part of a road, provided it spends \$2000

Eighth advantage.

Out of the \$2000 mentioned in the third advantage, or the \$1000 mentioned in the fourth advantage, a village municipality which macadamizes its main roads may receive, each year, from the government of the province of Quebec, for work done on its roads, provided it spends \$2500

Cement pipes, steel pipes, Etc.

Ninth advantage.

Out of the \$2000 mentioned in the eighth advantage, each rural or village municipality may receive a grant toward the cost of the use of pipes of the construction of the pipes which it will use in relation to such bridges, bridges, etc., as may be required.

Outfit for Macadamizing

Tenth advantage.

The government of the province of Quebec possesses a certain number of concassers, steam rollers, rollers, etc., which are loaned, whenever it is possible, to the municipalities which are doing macadamizing. The government pays half of the cost of the operation of these machines and the cost of the transportation, besides the subsidies for macadamizing.

IMPORTANT REMARKS

1.—There is only one case when, in the absence of the subsidies granted by the government, a municipality is obliged to take charge of all its roads, that is in the case of maintenance and repair of the roads. The first advantage, second advantage, and third advantage.

2.—The table advantage of the grant given by the government, it is not necessary for the municipalities to take charge of the roads.

3.—The regulations in this circular are binding. For further information, kindly address the minister of agriculture or the bureau.

4.—When a municipality intends to borrow for the improvement of its roads, it must not forget to submit a plan to the minister of agriculture. It should also submit every proceeding to this department. The minister will then, if necessary, issue a certificate of approval. It is necessary to be aware that the plan, as to the steps to be taken, should address the department of agriculture, which will give him any information, or send him the necessary forms.

Loans for Road Improvement

During the present session the government submits to the Legislature a bill which will enable the municipalities to receive loans for road improvement. According to the bill, the government will pay all the interest, but all the interest, provided this interest does not amount to more than 10% per year. Example: A municipality borrows \$10,000. It must not pay the debt in 10 years, the interest being about \$1,000 a year, and the interest at 10%. Consequently the municipality would have to pay \$1,000 per year.

Actual interest \$1000
Interest paid by the government 1000
Total interest 2000

To pay not the debt of \$10,000 the municipality would consequently be bound to pay \$1000 a year. But the government pays the interest and one half of the interest, the municipality will only pay \$200 a year.

REMARK

When a municipality takes advantage of the law regarding loans, it is not entitled to advantages 1, 2, 3 and 4.

JOS.-ED. CARON,
Minister of Agriculture of the Province of Québec

Québec, March 1st, 1917

WHAT CANADA LOSES IN HER NATURAL INDUSTRIES ASBESTOS.

The greater part of the asbestos used in the world (about eighty per cent.), is supplied from the deposits in the countries of Megantic and Richmond, in the Province of Quebec. THOUGH THE LEADING COUNTRY IN THE WORLD IN THE PRODUCTION OF THIS VERY IMPORTANT AND WIDELY USED MINERAL, CANADA DOES NOT MANUFACTURE SUFFICIENT ASBESTOS GOODS TO SUPPLY EVEN HER OWN MARKET.

Canada's exports of asbestos in 1916, were valued at \$4,750,000, while the exports of asbestos manufactures amounted to only \$98,244. In order that the manufacturers in foreign countries might not lose the benefit of their profits on the raw material supplied by us, we thoughtfully bought back from them after manufacture \$282,053 worth, and paid a duty of 25 per cent. for the privilege.

Very little asbestos is exported in an absolutely crude state. The greater part of it is shipped in the form of asbestos fibre.

During the eleven years from 1905 to 1915, we exported 814,260 tons, valued at \$23,480,678, and imported \$2,737,039 worth of manufactures of asbestos, so that by lack of manufacturing facilities of this product, there has been lost to the Canadian manufacturer and workingman, the profit on the manufacture of this \$23,480,678 worth, and the proportion of profit included in the \$2,737,039 worth imported.

Magnesite--A New Canadian Industry

H. J. ROSS.

It is to be hoped that my readers are not looking for a technical treatise on Canadian Magnesite! What I would say is the result of a more or less intimate touch with the development of the use of magnesite in the last 18 months or more; and, if from the few observations I have to make, some one will go away with even a slight increase of knowledge on the subject, the writer will be amply repaid.

Canadian or Quebec magnesite is described by the Bureau of Mines as a Crystalline Formation. As a matter of fact I find elsewhere the same words used in speaking of Austrian magnesite, so that if we say that the crude rock resembles marble in general appearance, but of a coarser grain, we might still be somewhat incorrect, because the color varies greatly, although in the early stages of this particular development it was thought that the only good stuff was white — further experience proved that for the most part, color had little to do with the quality, for we find the best may be white, blue or grey-white, or even greenish hued, and some of our most desirable has been found in grey, not unlike granite in general appearance, but for the most part it is a softer rock than granite and of a coarser texture. Unfortunately, from a commercial standpoint we are apt to run into pockets of lime — which cannot be distinguished except by those constantly at it, and even then such persons, the longer they are in the business, will not express an opinion but resort to analysis. This is the typical run of crude rock:

Magnesite	39.00
Lime	9.66
Gas	49.00
Silica	1.90
Iron . . . . .	.10
Aluminum . . . . .	.17
	100.00

The principal use of the product is for the Open Hearth Furnace. Magnesite has proven the only dependable refractor — the only material that will stand up under constant firing. Formerly and perhaps for the last ten years the Austrian product has had full-sway together with a fair proportion of Grecian.

Within the last year California has developed several deposits and is now well in the line of supply — it is the same—that is the best of it—as the Grecian, and white in color and of a very close grain.

Strangely enough there has so far been found but one locality in Canada wherein is magnesite—Argenteuil County, some 9 to 13 miles north of the C. P. Railway at Calumet, or Grenville. The whole district for many miles has been exploited by some of the largest refractors in the United States; it was only last September that one of them admitted in conversation having spent \$10,000 prospecting that vicinity, without results. Many other deposits have attracted the speculator in other parts of the Laurentians, but investigation and analysis have proven the discovery of ordinary dolomite, running perhaps 20 per cent magnesia.

The deposits that are being worked in Canada are of a various physical nature—in some cases it is on the surface, but often by core drilling showing the rock to run more than 100 feet down. There is, however, even though in this restricted area an ample supply for many years.

The rock is quarried like any other rock, broken to "man size" and hauled by teams to the railway—this haulage is the principal cost and cannot be obviated under present conditions.

The steel men treat the crude by heating 6 or 7 hours in an ordinary heating furnace, Cupola, or any similar apparatus. It is then drawn, the gas has been removed and it is ready for the open hearth. Usually the open hearth is built up with magnesite brick or silicate brick—as a matter of fact since the supply of Austrian magnesite has ceased to be relied on, there are a multitude of different kinds of brick used. Those who have used it most and without prejudice, say that they obtain results equal to any ever secured, and that the Canadian magnesite when so treated sets in one-third of the time that the imported article requires, a great consideration in these days of urgency and rush, where additional furnaces are being constantly added to cope with the demand, and is it not some satisfaction to know that Canadian magnesite is helping to straffe the Hun?

In the days before the war the furnace was first lined or built up with magnesite brick, and then lined throughout with magnesite proper—this was thought to be the only sure way. Since Canadian magnesite has come into its own we know of cases where the furnace was built up with the ordinary fire brick only, and up to the slag line only, the Canadian product was then used for the final lining

ready for the heat, and in the words of the superintendent in charge, this was in New Jersey early in 1916, stated when asked to say the results, that "it was satisfactory, that he was almost afraid to say so in case the next trial fell down." These people are still using carloads of Canadian magnesite. It has been stated again and again, that for sealing the ports and tap holes excellent results have been secured, the only fault found in many cases was that the material burned so hard it was difficult to open the holes to draw the charge.

Experiments have been conducted here and the material has actually been produced and sold here in a clinkered form This was not our best material, it was combined with a good percentage of iron and burned in a rotary kiln operated at a high degree of heat. The results attained are not regarded as entirely satisfactory, but, the effort demonstrates what can be done here.

In Pennsylvania and elsewhere throughout the United States many experiments have and are being made to find a perfect process. Some have discovered that in using the rotary kiln either with oil fuel or powdered coal and a blast, that the crude rock which has been broken into pieces like macadam stone for the purpose, becomes a fine powder at a certain heat and is carried away by the blast, the net result being a considerable loss in bulk.

In all these operations iron and other combinations are necessary, the California or Grecian being similar have a fair percentage of iron and combine more or less satisfactorily with the Canadian. Millions of bricks are being made therefrom for the same refracting purpose; our magnesite is, however, not suitable for brick making where used alone; the weak points are the lime content and lack of iron. Otherwise we have, may I hope, conveyed the fact that Canada has something needed by our big sister to the south as well as by her own steel mills.

Calcing is done at the mine by one country, they use an ordinary lime kiln of considerable capacity, in cylindrical form of sheet iron lined with magnesite brick, the rock is carried by cable buckets into the kiln and passes through a port in the bottom on to small cars in which it is run to a cooling floor where it is put into large bags for shipment. A considerable quantity of this calcined is sold to the chemical people in the United States for various purposes; some is used for the manufacture of Epsom Salts and some by certain steel producers.

There are many other uses for magnesite. It appears to have been sought here originally for the production of carbonic gas and was so used for some years, until other materials were tried and preferred, just why seems difficult to conclude. The gas is easily saved by closing up the kiln and providing piping and the necessary receptacles to care for same, but after all this is another business; a by-product, however, of much value which some day may be endorsed by Canadian capital.

It will be readily admitted that, although the shipment of crude rock is an important step in the development of our mineral resources, we are not getting the cream from such developments. The real object should be eventually to install a plant at the mine, treat the rock in the different ways adopted in the United States, and perhaps even improve on some of their methods, and ship it out in a manufactured form, thus making the manufacturer's profit, which is no mean one at any time and a doubly attractive feature just now.

I have not attempted to say anything about the use of this material for flooring, the flooring business is a very considerable one on this continent but building operations have been backward for a long time, except where steel and munition plants have been enlarged or established anew. It is a business, however, that has its special difficulties, and while perhaps originally intended as a more or less important part of the operations of the present development, has been side-tracked by the heavy and insistent demand for what nature has prepared and is ready to deliver in the state it exists, principally for the open hearth men.

In the laying of these floors the experiences have been varied. Failure results often from the ignorance of the contractor, often from dishonest mixing or inadvisable doping of the mixture, the defects are frequently apparent only after the air has done its work and the composition becomes thoroughly set. The fact remains, however, that as in its use as a refractor it is the best material for the purpose, so is it the best dependable flooring material. In both cases it must be treated fairly and when honestly used will give results.

Water Powers of Quebec

Estimated water power available, 5,600,000 h.p., of which 520,000 has been developed.

370,000 h.p. is used in the form of electrical energy; 100,000 h.p. as mechanical power for the pulp and paper industry and about 50,000 h.p. for other industries.

ZONES 1 AND 7.

Saguenay River.

300,000 h.p. could be developed on this river, and with a small amount of storage improvement in Lake St. John this could be doubled.

The junction of the Saguenay with Lake St. John is situated about 120 miles north of the city of Quebec. The interval from the lake to the river proper is called Grand Discharge, with a smaller stream known as Little Discharge, which starts from the lake and connects with Grand Discharge some nine miles down.

All the water rights were sold fifteen years ago by the Provincial Government at Grand Discharge, the present owner being the Quebec Development Company.

River au Sable and Shipshaw River, and Chicoutimi River. Important falls are being utilized on these rivers in the manufacture of pulp and paper.

On the Shipshaw River the Jonquiere Paper Mills have a large plant. Many other falls on this river are still in their natural state.

Chicoutimi River.

Several developments have taken place on this river, and are being used in the manufacture of pulp and paper.

Lake St. John.

There is an abundance of water power sites on both the large and small tributaries of the lake. Hundreds of thousands of horse power await development within a radius of 25 miles of the lake.

The district is richly timbered and should prove especially attractive to the pulp and paper industry.

North Shore of the St. Lawrence, between the Saguenay and the Atlantic Ocean.

Large undeveloped water powers are scattered throughout this district. The principal rivers are the Hamilton, Natashkwan, Romaine, St. John, Manitou, Port Neuf, Manikuan, Outards, Bersimis.

Total available water power well over 1,000,000 h.p.

South Shore of the St. Lawrence—Riviere du Loup.

This river empties into the St. Lawrence opposite the Saguenay, and falls at Fraserville are capable of developing 3,500 h.p., of which only 500 is at present used.

Magdalen River.

On this river there is a series of rapids and falls with an available horse power of 50,000, none of which is developed.

The remaining powers of this district are scattered over the James Bay slope, the available horse power being estimated at about 1,000,000.

ZONE 2.

St. Francis River.

This river rises in Beauce county, with a drainage area of about 3,000 square miles. A storage dam is being built by the Provincial Government, near the head waters, which will greatly enhance the value of the water powers. There are important pulp and paper industries at East Angus, Sherbrooke, Windsor Mills and Drummondville.

Chaudiere River.

Drainage area about 2,500 sq. miles. There are several important falls on this river only partially developed.

ZONE 4.

Richelieu River at Chambly.

This water power is situated 16 miles from Montreal. 20,000 h.p. is now being furnished to the City of Montreal for lighting and power purposes.

ZONE 5.

In this Zone are included the cities of Montreal, Three Rivers and Quebec.

The City of Montreal is in a geographical position to enjoy a more bountiful supply of cheap power than any other city in the world. From the water powers developed Montreal now receives 126,000 h.p., and of the remaining

water power 240,000 could be easily developed as the demand arises.

Three Rivers.

Situated at the mouth of the St. Maurice River, at its junction with the St. Lawrence. The St. Maurice River is 300 miles long and drains an area, including many lakes, of 17,000 square miles. The falls and rapids of this river are capable of developing 650,000 h.p. when the upper St. Maurice dam is completed. The most southerly water power of this river is situated at Le Gres Falls, 15 miles north of Three Rivers, where 60,000 h.p. is available, none of which is used at present.

Shawinigan Falls.

21 miles from Three Rivers. The Shawinigan Water & Power Co. have a plant here capable of generating 155,000 h.p.

Grand Mere, 12 miles above Shawinigan.

When the plant of the Laurentide Co. is completed the output of their plant will far exceed the Company's requirements. The available power at Grand Mere is estimated at 100,000 h.p.

La Tuque, 103 miles from Three Rivers.

The falls here are capable of developing 75,000 h.p. The mills are now using only 3,500 h.p.

There are a number of water powers north of La Tuque on the St. Maurice River available for future development. **Batiscan River (about half way between Three Rivers and Quebec.**

There are numerous undeveloped sites on this river.

At Grand Chute there is an available output of 5,000 h.p., part of which is developed to supply light to the city of Three Rivers.

St. Anne River.

Jacques Cartier River (near Quebec).

On both these rivers pulp and paper mills are established. There are still numerous sites awaiting development.

..... **Montmorency River.**

4,000 h.p. is now developed at the Falls.

Lower St. Anne River.

Seven falls now being developed for output of 15,000 h.p.

ZONE 6.

Ottawa River and Tributaries.

Quinze River, near Cobalt.—There are fifteen rapids on this river capable of developing 90,000 h.p., none of which are developed.

Kinewa River, Discharge of Kipewa Lake.—The large storage dams already built by the Federal Government afford a regulation of the water flowing from a watershed of 2,000 square miles, making some 50,000 h.p. available on this river.

There are many valuable sites on the Ottawa between Lake Temiscaming and the City of Ottawa, and in the branch channels north of Alouettes and Calumet Islands.

Lievre River.—This has a drainage area of 4,000 square miles. Total available power 85,000 h.p., of which only 10,000 h.p. has been developed.

Gatineau River.—Drainage area 9,500 sq. miles. This river enters the Ottawa at the City of Ottawa. Its falls and rapids are capable of developing 225,000 h.p., none of which are utilized at present. The sites on this river are ideal for the establishment of pulp and paper mills.

Coulouge River.—There are important falls on this river a few miles from the railway.

Rouge River, North River.—Partially developed.

Carillon Rapids (Ottawa River).—These rapids are capable of developing 160,000 h.p., and are important on account of their proximity to Montreal.

St. Lawrence River.

Cedar Rapids (about 35 miles from Montreal).—These rapids are capable of developing 160,000 h.p.; 90,000 is now developed by the Cedar Rapids Manufacturing & Power Co.; 60,000 h.p. from this source is transmitted to the Aluminum Works at Massena.

St. Timothee.—The Canadian Light & Power Co. are furnishing 20,000 h.p. to Montreal, chiefly to the Tramways Co. When completed this plant will generate 50,000 h.p.

Souanges Canal (near Cedars Rapids).—13,000 h.p. is transmitted to Montreal from this source. There is also sufficient power produced to light and operate the locks on the Canal.

Lachine Rapids.—The total horse power of these rapids is estimated at 400,000, of which only a portion is available. 12,000 h.p. is supplied to Montreal.

Portland Cement Industry in Canada

J. F. RHODES, C.E.

There is probably no business connected with the building industry that has had a more rapid growth in Canada during the last twenty-five years, than has the Portland Cement Industry.

As we turn back and study the history of civilization from its primitive state to our present highly developed one, we will find that the character of the structures of the different periods has met the requirements of the conditions of the age, as far as the human intelligence of that age could assemble the raw materials at hand.

The first implements used by man were those which lent themselves to simple treatment, namely, stone and wood. These two building materials had a very high development. In fact, we are to-day using architectural designs for them, which have been handed down through a period of three thousand years.

These materials were used exclusively for all types of buildings until the later half of the nineteenth century, when the development of steel and iron and clay products added a new factor to building construction. The period of building from 1850 up to the last twenty years was then largely one of steel construction, for our large buildings, in combination with wood and stone.

Within the last twenty years a new material, concrete, a manufactured stone, made by mixing together in definite proportions cement, sand and crushed stone or pebbles has been developed and it seems to be by far the most important addition to the present day construction materials. The adaptability of this material to all kinds of engineering structures has made possible undertakings which previous to this time it had been impossible to build. It is this case of adaptation of concrete to building construction that has caused the tremendous increase in the use of cement in the last two decades.

Portland Cement was first discovered by John Aspin, an English bricklayer, of London, England, in 1824. Later he erected a small factory at Wakefield, Eng., for the manufacture of Portland cement, which was used for the first time in the Thames Tunnel in 1828. In 1859 John Grant decided to use Portland Cement in the London Drainage Canal. He published his reasons for so doing in the "Transactions of the Institution of Civil Engineers." From that time the new cement became better known and used more extensively.

The first Portland Cement to be manufactured on this continent was in the year 1872 and the total production in 1880 amounted to approximately 42,000 barrels. At the present time production amounts to over a hundred million barrels annually.

Portland Cement plants were constructed in Canada at a very early date in different places throughout Ontario, but were not very successful as there was not enough consumption in the country to make the business a paying one. In the last 20 years, however, the Portland Cement industry in Canada has increased by leaps and bounds. In 1891 the consumption was 186,361 barrels, or .038 barrels per capita. In 1901 the consumption was 872,966 barrels, or .16 barrels per capita. In 1911 the consumption was 6,309,717 barrels, or .08 barrels per capita. In 1913, the consumption in Canada was 8,913,000 barrels, or 1½ barrels per capita. During 1915 and 1916, war years, the per capita consumption amounted to eight-tenths of a barrel.

There is a remarkably good distribution of cement throughout Canada, mills being located as follows:

Three mills in Quebec.

Ten mills in Ontario.

One mill in Manitoba.

Four mills in Alberta.

Two mills in British Columbia.

These mills are so situated in the Provinces that cement can be shipped to almost any point in Canada, with the exception of the North West territory, within the course of a week.

This increase in the consumption of Portland Cement in Canada has been due entirely to the large variety of uses to which concrete has been adapted. While in the early history of the industry concrete was used largely for foundations, tunnels, etc., by the development of reinforced concrete, it was found possible to adopt the material to practically the same uses to which structural steel has been used.

The invention of reinforced concrete is usually credited to Joseph Monier, who in 1861 constructed tubs and tanks of concrete surrounding a framework or skeleton of wire.

The principle of reinforced concrete consists primarily

of the imbedding of steel in concrete to take care of the tension strains produced by external loads and internal strains caused by temperature changes in the concrete, and the concrete is used to take care of the compression stresses. This combined use of concrete and steel permits the use of concrete for the full compression stresses and the use of steel for only tension stresses, thus making a completed structure in which both materials are used more economically than either one separately.

Previous to this invention concrete could only be used for compression stresses, such as for foundations where there would be no tendency to bending, but after this invention it was found possible to use reinforced concrete where bending takes place, such as in buildings, bridges, etc. To-day practically all heavy foundations, bridge abutments, retaining walls, dams and breakwaters are built of concrete and in the building world concrete is extensively used for fireproof commercial and industrial buildings, residences, grain elevators and storage bins, successfully competing with wood, stone and steel in price, and giving structures that are more rigid, are practically permanent and which are positively fireproof. In fact, reinforced concrete has completely revolutionized building methods in the past few years.

Another very important use of concrete is in Municipal improvements, such as, construction of sewers, streets, sidewalks, and bridges. Within the past few years it has become practically a standard practice among all engineers in cities to use concrete for the base of all their pavements, because the heavy traffic city pavements are subjected to cause pavements built without a concrete base to fail.

One of the latest and most important developments in street paving has been the extensive adoption of concrete as a surfacing material, as well as a base, and many streets and highways constructed of this material throughout Canada are proving very satisfactory.

Another great source of the increased use of Portland Cement in Canada has been the adoption of it by farms all over the country in the construction of permanent farm buildings. Dotted over Canada from one end to the other you can now find thousands of concrete silos, concrete stable floors, concrete dairy houses and thousands of foundations of buildings on Canadian farms that are built of concrete. The farmer has learned to use it just as did the early man in shaping the stone and wood that he found about him, and it is very common to see many structures of pleasing appearance on Canadian farms built of this material at a very low cost and which have been in use for ten to fifteen years.

As near as can be judged by the distribution of sales throughout Canada a conservative estimate would be that one-half of all the cement used in Canada to-day is consumed by the farmer or the inhabitants of very small municipalities.

There are some other uses of concrete that are every day becoming more common and which seem destined to be a big factor in Canada's development, and that is the use of manufactured concrete products, such as drain tile, sewer pipe, telephone poles, lighting standards, trolley poles and building blocks. These uses all seem to have commercial value because they all have those great advantages which concrete gives above all other materials — permanence, fireproofness and strength.

Canada being a young country and later in its development than practically any other great country in the world, has every opportunity to build, better, safer and cheaper than had these other countries. In their development stone and wood were their only materials, while in ours we have the advantage of this manufactured stone which is cheaper than cut stone and just as durable. We also have the opportunity, by the use of this material, to build a fireproof country. Up to the present time Canada's fire loss has been larger than in any other country in the world. This is probably entirely due to the fact that in the great majority of our older cities, such as, Montreal and Quebec, wood being plentiful, most construction was done of that material stone being too expensive for many people to use. To-day many municipalities are passing building codes prohibiting the firetrap and in so doing are paving the way for exclusive fireproof construction, so that eventually when we come to the "Concrete Age," when we will find houses, streets, lanes and even lamp-posts and fences built of concrete; then we will begin to realize what tremendous value the cement industry has been to Canada.

The Paper Mill and the Town

J. NEWELL STEPHENSON, M.S., Editor Pulp and

Paper Magazine of Canada.

Just now, when prices of paper, and pulp and paper products are abnormally high there is a great inducement to build pulp and paper mills. Foreign products are shut out of competitive markets, the demand is exceptional, and mills are paying good dividends, many of them, however, for the first time. There is a very considerable growth in the normal demand and this should be taken care of by new enterprises, but extensions of the industry much in excess of this growth may leave the market sadly oversupplied when the foreign tide again comes in. There is undoubtedly need for new mills to make pulp, paper and special products. There are also locations that are naturally adapted to these industries. Foresighted investigation and co-operative effort should do much to prevent in the future some of the misfits that have occurred in the past in the location of mills.

The Pulp Mill.

Let us first distinguish between the pulp mill and the paper mill. One can be operated entirely without any organic connection with the other, although the product of the pulp mill passes through a paper mill before it eventually finds its way to the market. Of pulp mills there are two kinds, mechanical and chemical. Both must be supplied with wood, preferably spruce or fir, although some mills use tamarac and hemlock, and for soda pulp, poplar or basswood. The mechanical pulp or "ground wood" process consists in holding wood, freed from bark against a grindstone by hydraulic pressure, so that the stone rubs the fibers from the stick. A stream of water washes the fibers over a set of screens to sort out splinters and knots. The strained pulp then has the water removed and is pressed into laps or bundles for shipping.

The principal necessities for such a mill are power, wood and labor. If electricity or water power is available—and that is the only suitable location for such a mill—the only fuel required is for heating purposes. Most of the freight traffic is thus from the mill, unless the wood has to come by rail. The need of wood makes the proximity of a ground wood mill a boon to the farmer with a wood lot. He can cut off a part of his timber as circumstances demand or permit, and get a good price for it. If he has no pulp wood of his own, there is likely to be work for him and his team in helping some lumbering operation nearby. The need of choppers gives employment to those without teams. These woodsmen usually do farm work in the summer. The labor demand in the mill does not call for many skilled workmen. A 50-ton mill might require a force of 20 or 25 men. Such a plant would require approximately 5,000 to 7,000 horse power and some 40 cords of wood per day. Ground wood pulp is used mostly in newsprint, wrapping and paper boxes.

Chemical Pulp.

The chemical pulp mill is a different proposition, about twice as much labor is required and of a more intelligent character. Technical and chemical control is more necessary. A preliminary barking of the wood is required, as for ground wood. Instead of grinding, the wood is chipped and then cooked in digesters. The cooking is a chemical process for removing the gums and other non-fibrous material from the wood. The preparation of the cooking liquor depends upon whether the sulphite, or soda process is used, but in any case it is a chemical operation. After screening, the fibres are de-watered on what is called a wet machine and put up in laps, pressed into bales or run over drying cylinders and wound up in rolls.

Sulphite pulp is used in all grades of paper, soda pulp mostly in books and magazines, sulphate or kraft pulp in wrapping and container board.

Unlike the ground wood mill, the chemical pulp mill requires a large amount of fuel, perhaps 3 tons of coal to 4 of pulp. This makes it necessary to consider fuel supply in locating the mill. Somewhat less power would be required, as nearly half the substance of the original cord is removed in the cooking. Another point of difference is the larger amount of material to be handled. From the ground wood mill, about the same weight of pulp goes out as that of the wood that came in. Besides the wood for chemical pulp, the weight of the coal, chemicals, etc., com-

ing in will probably be in excess of the pulp going out. This is a great advantage in balancing freight business, although the cars used for inbound can seldom be used for outbound freight.

The paper mill is in many respects similar to the pulp mill. No raw wood is used unless a pulp mill is a part of the plant. Other raw materials than wood may be used, but wood is by far the principal fibre used in Canadian mills. The majority of mills in this country make either news or wrapping. The pulp is usually made wholly or largely on the premises. Coal and other materials must be brought to the mill.

The Paper Mill.

A paper mill requires a larger force than a pulp mill and on the whole a more skilled and intelligent class of labor. The number of men employed will depend on the kind of paper made and the number of shifts or tours. The larger the output, the less in proportion will be the working force. The process consists essentially in mixing and beating the fibrous materials to a pulp, with the addition of sizing, color, etc. This is diluted to a fluid, which is poured upon a travelling endless wire cloth, through which most of the water drains, leaving a thin sheet of interwoven fibres. This sheet is run through press rolls, becoming drier and firmer, and then over steam-heated cylinders to finish the drying. The surface finish is put on in several ways, depending on the purpose of the paper. If rags, rope, etc., are used, a preliminary treatment of sorting, cooking, washing and bleaching is required—except in making felt papers, for which the sorted rags go right to the beater.

A rough division of the personnel of a paper or pulp mill would place about 10 per cent of the force as salaried workers, 30 to 40 per cent as skilled operators and foremen and 50 to 60 per cent as laborers and unskilled workmen.

Municipalities Suitable for Paper Mills.

Not every town is adapted to the location in it of a pulp or paper mill. There are many mills now situated in quite unsuitable places. If it had not been for the great demand and high prices for paper in the last two years, some of these would unquestionably have had to close. There are mills now in operation where all supplies and products must be hauled by team over miles of country road. They may have been built before the advent of the railroad, but they are certainly giving a big handicap to the mill that has its own railroad siding or wharf. Some of these mills were so located because of water powers and at a time when wood was cheaper and more plentiful for fuel. The product brought a higher price in a more restricted market. Such a mill may even now do a satisfactory business in a special line.

Some towns might very properly encourage the location of one or another type of mill. To invite the erection of a pulp or paper mill the town must either wish to bring in new inhabitants or to provide additional employment for those already present.

A town with good water power and plenty of available pulpwood could very well consider the possibility of a ground wood mill, providing the product could be got to market at a reasonable figure. A ground wood mill can sometimes be used as an incidental outlet for power. For instance, a town in Maine has a large textile mill which uses a lot of current in the day time. The generators were practically idle at night till a pulp mill was installed to use the current when the looms were stopped. This arrangement put a more uniform load on the generators and grew at least \$1.75 where one dollar grew before. A pulp mill can be run just as well in the daytime and a similar arrangement might be made with a town lighting system. The number of grinders in operation can be changed according to the other load on the electric plant.

The location of a chemical pulp mill requires the consideration of other factors, such as power, fuel, wood, and transportation facilities. A sulphite mill requires large amounts of cheap lime or limestone, running rather high in magnesia. A soda mill requires a lime low in magnesia. One uses large amounts of sulphur, the other consumes

LABOUR BUREAUS.

Canada after this war, must face the problems of:—
1st.—Replacing her returned soldiers in civilian employment.

2nd.—The consequence of the displacement of the munition workers to the extent of over 100,000.

3rd.—A large influx of immigration.

These three problems, each one of which requires much thought and study, will have to be taken up now if this Dominion of ours is to take her proper place as the leader in nation building.

There must be some simple means for the proper distribution of immigration and labor — industrial and agricultural.

At present (as recent events prove), Canada has no adequate machinery to cope with either labor or immigration.

A National system of Labor Bureaus, if carefully devised, will supply the necessary machinery.

The National Labor Bureau is not a fad, having been successfully tried out in

Great Britain since 1910:—

(Under Federal Government.)

New Zealand for 24 years:—

(Under Federal Government.)

Australia for 17 years:—

(Under the Commonwealth.)

France and even Germany are depending absolutely on their National Labor Exchanges to solve their labor and economic problems when hostilities have ceased.

Salient Points of a National Labor Bureau for Canada.

The salient points of a system of National Labor Bureaus in Canada would be:—

1.—A Commission or authority at Ottawa with executive power over the whole of Canada. (The personnel of this Commission will be the key to its effectiveness).

2.—In every municipality or district a small local board — representative of local council, labor and trade — with the agent of the central authority acting as secretary.

3.—Wherever possible the present machinery to be used and the co-operation of the Provincial Governments invited.

4.—A strict neutrality on the part of the Bureaus in the case of strikes and lock-outs.

The system of National Labor Bureaus, if properly worked out, will mean that for very little cost to the country, there will exist, machinery so far-reaching in its ramifications and influence as to eliminate for all time the bugbear of unemployment.

The employer and worker will be brought together without the nefarious system of commissions.

The immigrant will have a place to go to where the best advice will be obtained and Canadian citizenship inculcated.

Now is the time for Canada to start a national system of Labor Bureaus.

PAPER MILL AND THE TOWN—Continued.

considerable soda ash (sodium carbonate). A sulphate mill uses much salt cake (sodium sulphate). The sulphate process is particularly adapted for the utilization of lumber mill waste, of which unknown quantities are purposely destroyed in Canada. Much waste can also be used in sulphite manufacture, particularly the better class of spruce and fir slabs.

Most paper mills in Canada are, and will be, built in connection with a pulp mill. The tendency seems to be towards large units, mostly in spots favorably located in regard to supplies of pulpwood, but not too far from coal, chemicals and markets. In many of these cases the town is built up around the mill. Some far-sighted mills include the planning of the town and the initial building as part of their programme.

Paper mills that in the future may be built in towns or cities are likely to be those manufacturing specialties, container board, etc. There may be, in fact must be, local advantages such as clean, pure water, cheap coal, local markets, exceptional freight facilities, satisfactory supply of raw materials and last but not least, an attractive, well governed community.

WHAT CANADA LOSES IN HER NATURAL INDUSTRIES.

COPPER.

Canadian copper, like nickel and zinc, is almost entirely exported to the United States refineries for treatment.

There is a small output of copper sulphate at Trall, B.C.

British Columbia is the premier copper producing Province of Canada, with Ontario second. Nearly all the copper bearing ores of British Columbia are auriferous, and many of them contain a combination of gold, silver and copper.

Copper bearing minerals have been found in a great many localities of British Columbia, in the interior, on the coast and the islands along the coast. The principal districts in which important discoveries have been made are in southern B. C., West Kootenay and Kamloops districts, in the coastal district, on Vancouver Island, and some of the coastal islands. The most important active producing mines are at Rossland, Phoenix and Greenwood in the interior, and at Britannia, or Howe Sound, Texada Island and Granby Bay on the coast.

The Ontario supply comes from the Sudbury district. That of the Province of Quebec from the Eastern Townships. There are three active mines in the vicinity of Sherbrooke.

The copper production of Canada for the ten years from 1905-14 has been 584,861,510 lbs., valued at \$70,218,658, and only a very small portion of this has been refined in Canada, the percentage for 1914 being less than one-quarter of one per cent. of the total production.

Canada's imports of copper and copper manufactures, during the same period, have totalled the respectable sum of \$41,715,797.

The following table has been prepared from Government statistics, but it must be borne in mind that it does not include a considerable quantity of copper ore shipped to smelters outside Canada for smelting. Figures are not available for these shipments.

PRODUCT OF "MATTE" EXPORTED FOR REFINING.

Year.	Quantity lbs.	Value \$.
1905	40,740,861	5,443,873
1906	42,398,538	7,303,366
1907	54,688,450	8,749,609
1908	51,136,371	5,934,559
1909	54,447,750	5,832,246
1910	56,964,127	5,840,553
1911	55,287,710	5,467,725
1912	78,488,564	9,036,470
1913	81,879,080	9,479,480
1914	68,830,059	7,130,778
	584,861,510	70,218,658

IMPORTS.

Copper and Copper Manufactures.

Year.	Quantity. Pig and old Scrap. —lbs.—	Value. \$	Manufactures.		Imports. Total.
			Value. \$	Total.	
1905	1,944,400	266,548	1,775,881	2,042,429	
1906	2,627,700	441,854	2,660,303	3,102,157	
1907	2,616,600	520,971	2,545,600	3,066,571	
1908	3,612,400	650,597	2,713,060	3,363,657	
1909	2,732,300	383,441	2,086,205	2,469,646	
1910	4,914,200	640,181	3,729,592	4,369,773	
1911	5,915,700	734,346	4,113,395	4,847,741	
1912	5,222,300	863,453	6,081,464	6,944,917	
1913	5,910,900	932,885	6,373,250	7,306,135	
1914	3,861,100	523,216	3,679,555	4,202,771	
	39,357,600	5,957,492	35,758,305	41,715,797	

Responsibility of the Municipalities

HARRY BRAGG.

Every thoughtful man realizes that the readjustment of economical conditions when the war is over will be a problem requiring the best minds in the Dominion for its satisfactory solution.

The Federal Government is taking steps towards this end by the appointment of Committees and Commissions for the purpose of studying the most practical way of dealing with the problem.

The fact that municipalities form such a potent factor and wield such an influence in directing the destiny of the Dominion, should compel them to see their obligation and responsibility in this matter.

This propaganda of Canadian Preparedness is an attempt to present a concrete idea towards the solution of the problem. And at all events, it offers something definite to discuss, which is desirable in view of the general method of talking round the subject, without making any succinct suggestion.

But this incidentally brings forward certain conditions in municipal life in Canada, which should be faced seriously and discussed.

As one who has visited all the important places in the Dominion to get into personal contact and see things as they are at first hand, and one who has attended—not only the Conventions of the Union of Canadian Municipalities, but also Provincial Unions from Halifax to Vancouver, as well as those of sister bodies across the line—these predicate a wide acquaintance with municipal work in the country that has been the subject of the study; and no one can have had such an experience without acquiring some knowledge.

Naturally, this experience has left certain definite impressions, and these are, as a matter of course, based upon general, rather than local conditions; and, therefore, may possibly differ from those whose horizon is bounded by their own municipal limits.

Perhaps the first, or basic, impression, of municipal life in Canada is that just as individualism is carried to an extreme on this continent—in contradiction to the suppression of individualism in Germany—so the same virtue is unduly prominent in most of the municipalities in Canada, until it becomes a menace, if not an actual danger.

Even loyalty to one's country may be carried too far! For if it be true that every nation, like each individual, has a soul of its own, then also every city has, or should have, a soul of its own. There is too much selfishness in most municipalities in Canada, and too little interest in the points of welfare common too. This is based largely upon ignorance of each other, and this ignorance is dense and widespread.

Let me illustrate:

In talking with a permanent civic employee of Toronto, who was blaming the City Council of Montreal for not showing more for its revenue, it appeared that he had not the slightest idea that over one-quarter of the income was absorbed for the cost of widening the narrow streets of the old French regime (the proportion is much larger now), nor that the whole cost of street improvement, both over- and underground, was borne by the public treasury, and not by the fronting proprietors, as in Toronto and in all Provinces except Quebec.

Again, on showing a Winnipeg civic official round Montreal, and carefully taking him among the new districts, where the houses and factories were evidently of recent construction, he turned to me with great surprise and said: "Why, Montreal is actually growing!" He had no idea that the expansion of the West affected the chief seaport of the Dominion!

It is satisfactory to see sign of an "entente cordiale" between certain cities at all events. For instance the combining for a common sewerage and water system between Windsor, Ont., and its neighboring towns; and the discussion of a common sewerage system by the towns on the St. Lawrence River opposite Montreal. Such concerted action will result in a saving, both in construction and upkeep to all the places concerned. Common sense shows that four or five adjacent communities can instal and operate such engineering works as sewerage and water, and probably gas and electricity, at far less cost than all would have to pay if each had a separate plant.

This egotistical feeling in cities, towns and even villages, prevents co-operation in many fields where common interests are involved.

Arising partly from this are the spasmodic attempts to change the governing machinery, based largely upon the wave of Commission Government which has been sweeping over the United States.

I have pointed out more than once that this revolution across the line is based upon conditions which do not obtain in Canada, such as the fatal admixture of Federal, State, County, Municipal and other questions in a single election, and the consequent bewildering ballot papers which no voter can understand.

So far only two Canadian municipalities have adopted the system, in spite of the preaching of experts from the States who have not condescended to enquire into the simple conditions which prevail in elections in Canada.

It may be a matter of debate whether the United States' system of Commission Government, the purely Canadian idea of a Mayor, Board of Control and Council, or the old British plan of Mayor and Council (which is found in the vast majority of Canadian places) is the best.

But one thing is sure; that the success of municipal government depends far more upon the men who administer it, than upon the system under which they work; and therefore, in the last analysis, upon the electors themselves.

This leads to the oversight which is absolutely necessary to protect the country at large, as well as the proprietors in every place. I refer to the absolute need of Municipal Departments of the Provincial Governments, for under our system of Federal and Provincial Government, a Federal authority is unworkable. This means, to some extent, the adoption of something like the Local Government Board of Great Britain, which has the oversight of municipal expansion.

The two baby provinces, Saskatchewan and Alberta, have adopted this, and each has a Minister and Deputy, of Municipal Affairs. And as the deputies have been chosen for their fitness, apart from political reasons, they are working admirably, and it is to be hoped that every other province will, sooner or later, follow this example.

Let me illustrate the need for an overhead authority, as to finances especially.

When the city of Montreal had to take over the adjoining cities of St. Henri and Ste. Cunegonde, which had secured some of Montreal's factories by offering exemption from taxes, it took over an annual debit balance of over \$50,000.

Such bad financing could not occur if there was an overruling power which could control civic borrowings. And the credit of every municipality would be improved.

Uniform accounting has long been advocated by the Union of Canadian Municipalities, and it would increase the common knowledge of all in a way that would result in saving much wasted money. For comparisons of costs would lead to better and more economic management, both in construction and upkeep of public works. As it is, comparisons are practically prohibited, as exemplified in a table issued by the late Mr. Robb, City Treasurer of Montreal, in which the necessary explanatory foot notes were almost as numerous as the lines of the different places.

Publicity is recognized by most progressive cities as a necessary part of civic activity. Hamilton, Ont., and Winnipeg, Man., are good examples of what can be done by live publicity bureaus. This branch of modern civic work can be bettered by a common good feeling.

The most important point in civic progress, it appears is to use, as the wise individual does, the point of least resistance. In other words, for every city to work out its destiny on the lines which are easiest.

The striving to get for one's city what logically belongs to another is as dishonest and as likely to be successful, as for a man to grasp his neighbor's business, instead of attending to his own.

As men are learning, through the bitter lessons of the war, that kindness and friendly feelings are profitable, so cities will find exactly the same applies to them.

Just as the world is beginning to realize the truth of the statement, "No man liveth to himself"—so cities should learn that this applies also to them.

OUR IMMIGRANTS

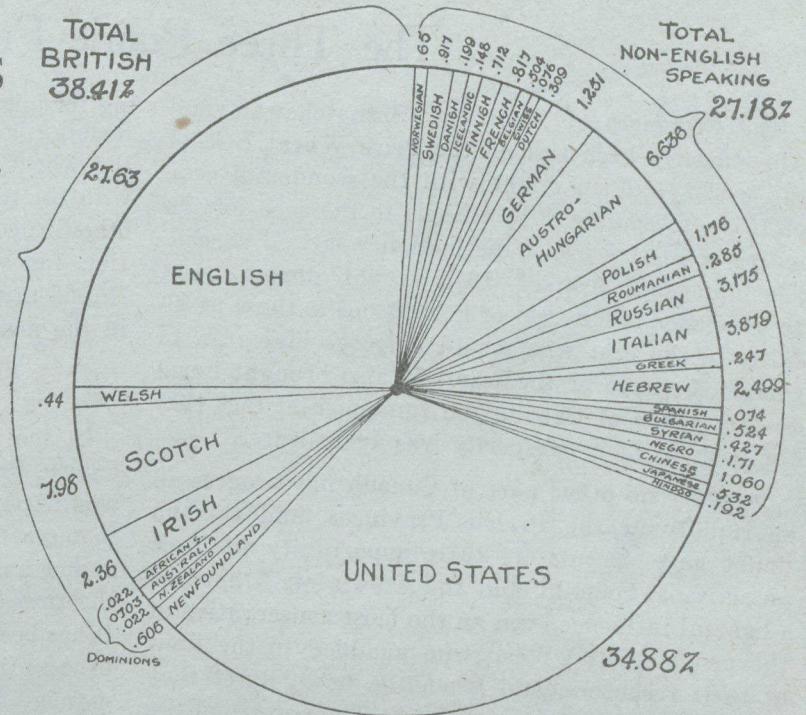
What shall WE do with THEM?

What will THEY do with US?

Population, 1901	5,371,315
British Origin	3,063,195
	= 57.02%
Immigration, 1900 to 1914	2,906,022
British,	1,116,380
	34.41%

DESTINATION BY PROVINCES.

Maritime Provinces	4%
Quebec	16%
Ontario	16%
Manitoba	15%
Alberta	14%
Saskatchewan	13%
British Columbia	12%



(Prepared by the Winnipeg Bureau of Social Research).

Fifteen years ago the Dominion had a population of only five million souls. Of that population only some three millions were of British origin. During the fifteen years there has been an immigration of over three millions, so that for every Canadian of British origin who has here fifteen years ago, there is now an immigrant.

Of the 3,000,000 immigrants, 28 per cent. were British, largely English; 34 per cent. were American—a mixed group containing many of Scandinavian and German origin; the remaining 28 per cent. were non English speaking—the remaining 28 per cent. were non English speaking—a medley of peoples from every country in Europe as well as from some countries in Asia.

In the formative period of their history the United States had no such flood of immigration as this. In the first decade of last century the United States with a population of 5,000,000 received only about 70,000 immigrants. In the first decade of this century, Canada with a population of 5,000,000 received some 2,000,000 immigrants, or 28 times as many as the United States during the corresponding period. Further, up till 1869 less than 1 per cent. of the immigrants to the United States came from South-Eastern Europe. Of the recent immigration to Canada almost one-quarter is from South Eastern Europe.

Before the English and French in Canada have become thoroughly unified a great wedge of "foreigners" has been driven into our community life. Race animosities, re-driven into our community life. Race animosities, religious prejudices, language jealousies and social cleavages are already forcing us to realize something of the delicacy, the complexity and the difficulty of the problems which face us.

Undoubtedly the immigrant has helped to create our problems, as, it should not be forgotten, he has helped to create our wealth. It is not so clearly recognized that the immigrant must help to solve these problems and may indeed take a prominent place in the bringing in of the better day.

The immigrants bring greater assets than we sometimes realize. Many of them have small financial resources, but they are endowed with a capacity for patient industry and not a few of them have skill and training in various crafts and show boundless ambition.

The members of each nationality bring with them a rich and varied culture, and a peasant clad in sheep-skins possesses artistic abilities of no mean order. Our literature,

our music and our art, let it not be forgotten, we owe largely to Europe. The immigrant comes to enrich and re-vitalize our cherished store.

Many of the immigrants are imbued with a reverence and a patriotism which we need in this new and commercialized country of ours. Through the centuries they have struggled for the liberty which we have largely inherited. They have kept alight the fires which in our materialistic American civilization burn but feebly. Perchance the immigrant has come to reinforce some of the institutions which were in danger. His coming is undoubtedly compelling us to make deeper and broader the foundations of our national life.

ELEMENTS OF A CONSTRUCTIVE POLICY

Voluntary agencies must become more intelligent, sympathetic and disinterested. The churches must learn not to be ministered unto but to minister. The settlements must not attempt to make Canadians after one pattern, but rather to mediate between the old life and the new and to express emerging Canadian ideals.

The schools must accept wider responsibilities—(a) must educate all prospective citizens, adults as well as children; (b) must adopt curricula which bear some relation to the past, present and future life of the child; (c) must extend their functions—in the cities, providing for a wider social life; and in rural districts, forming the centre for social service activities.

Government departments must extend their activities. Railway and steamship companies have been subsidized, industries have been bonussed, immigration has been encouraged; why should not the interests of the worker and the immigrant be safeguarded?

NEEDED

- (a)—Stricter examination of immigrants.
- (b)—Maintenance of minimum standards of living (housing, health, wages, social opportunities).
- (c)—Establishment of free labor bureaus.
- (d)—Adoption of policy of land-settlement involving financial assistance and expert supervision.
- (e)—Commission on Conservation of Human Resources.

It is important that we should know all about "The Canadian Oyster," "The Protection of Migatory Birds," "The Insect Food of Fresh-water Fishes," "The Progress of Fur Farming," "Prospects of the Karakul Sheep Industry," or "The Problem of the Halibut." Is it less important that we should know something about "The Canadian Ukrainian," "The Protection of Migratory Workers," "The Milk Food of City-bred Babies," "The Progress of Rural Co-operation," "Prospects of Educating the Russian-Germans," or "The Problem of the Doukhobor"?

The Three Prairie Provinces

The Provinces of Manitoba, Saskatchewan and Alberta have been termed the Prize Wheat Belt of the world, and no doubt with the wonderful crop of 1915—averaging 30½ bushels to the acre for the entire belt—this proud distinction was well earned. The abnormal crop of 1915 would almost seem to have been the answer of Providence to those pessimists in the east who would only see blue ruin to Canada because of the war. It also brought home to the people of Canada the fundamental fact that the basis of their prosperity was agriculture.

Possibly no other part of Canada has progressed so rapidly as the Prairie Provinces, and this no doubt gave speculators their opportunity to force an artificial boom in land and "town lots" that had a baneful influence even on the most conservative of the people of the West, who gambled to the limit of their resources, and when the boom burst they were hard hit, and many ruined. The municipalities suffered likewise, so much so that their credit got very low. On the outbreak of war all were forced to retrench. In fact, if the war did nothing else it enabled the municipalities and the citizens to find themselves, with the consequence that to-day the civic administrations were never on a better business footing and the citizens never had so much money in the banks; not through speculation but by hard work and careful management. The get-rich-quick idea has been effectively knocked on the head.

The supposed fault of the municipalities has been over-building of streets and pavements, but if this is so, it is a splendid fault as showing an unlimited confidence in the future. The same complaint was made about the building of the Federal Houses of Parliament some fifty years ago, but time and the wonderful development of the country have justified the early builders, and so will the coming in of new citizens justify the present municipal expenditures on improvements.

Distribution of Immigration.

One of the difficulties that particularly affects the middle west is lack of proper control in the distribution of foreign immigration. There are large communities of foreigners who know only material Canada—they know not social Canada and the part they are expected to play in the building up of a national Canada. Surely something should be done for their proper assimilation otherwise they will always be foreigners. As a matter of policy no large foreign community should be allowed in Canada, and if the immigration authorities are remiss in their duties the Provincial and Municipal governments should take a strong hand in solving the difficulty.

Mixed Farming.

One of the essentials of success in an agricultural country like the Prairie Provinces is the small hold-

ing for mixed farming and truck gardening. Wheat farming is valuable to a limited extent only—when the wheat crop fails everything fails, and further with the tremendous acreage that Great Britain and other European countries is putting under cultivation for wheat and the opening of the ports of Russia there will not be the same demand for wheat in the near future. Mixed farming is always safe.

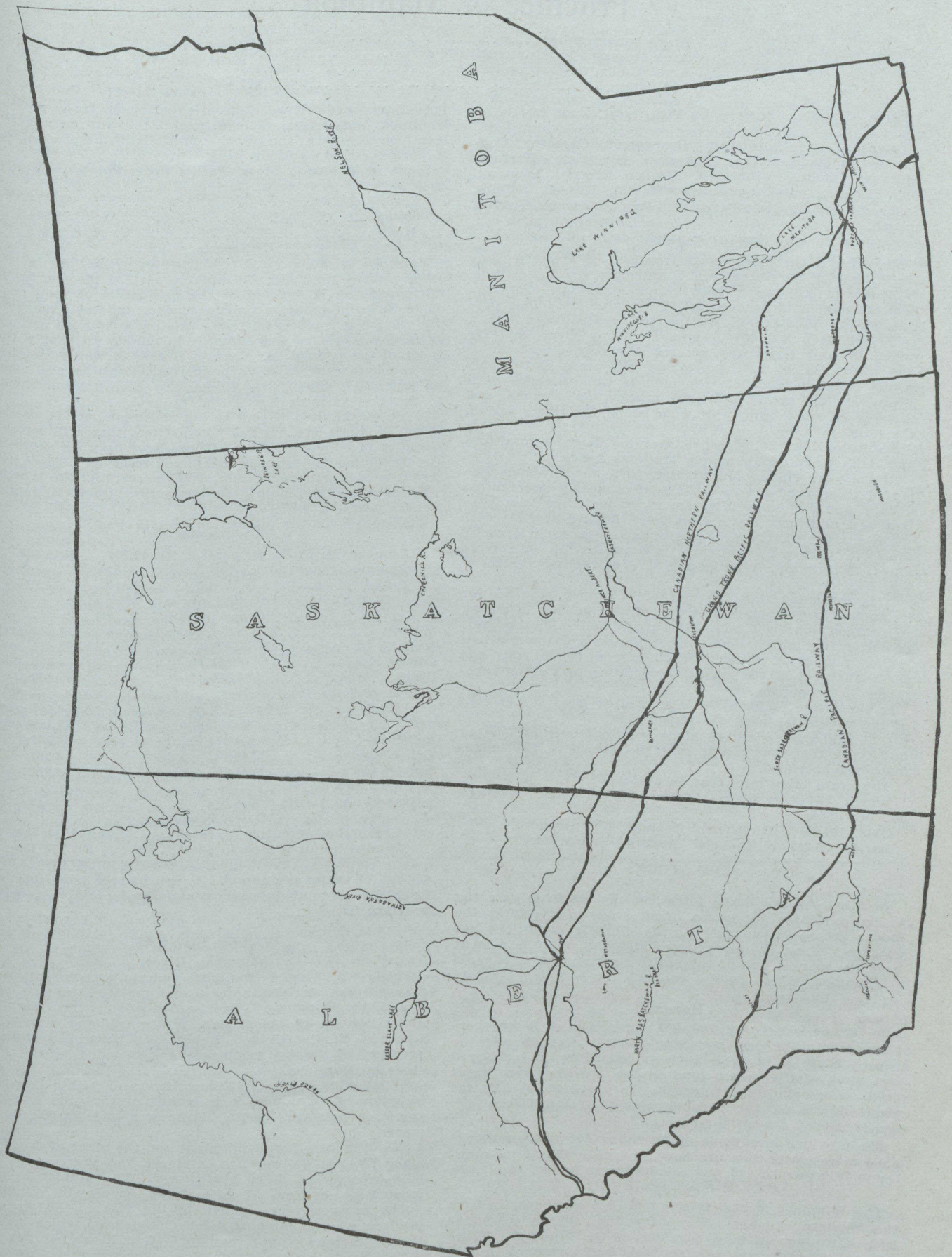
Development of Resources.

In the following pages it will be seen that the Prairie Provinces have many natural resources that would pay well to develop. Lignite for instance, that reaches into the millions of tons, but which up to now has never been utilized other than for feeding the fires of these farms on which lignite is located. It has been proved conclusively that by a very simple process lignite can be briquetted for both commercial and domestic uses. Lignite and its commercial value is now being investigated by the Industrial and Scientific Council with the idea of the Federal Government putting down the necessary machinery for briquetting. But no government will do much without public opinion behind it or to force its hands and this should be a special opportunity for the municipalities of the three provinces to see to it that in lignite the government carries out the recommendations of the advisory council.

On another page is an article on the value of straw as a medium of commerce to make straw board, for which there is a great and growing demand.

Better Social Life.

A distinctive element that should enter into rural life is social intercourse, and this in many districts in the West is sadly lacking. It is a fact which cannot be realized too quickly that it is the social life of the city which is the principal attraction to those who leave the rural for the urban centre overcrowding the one at the expense of the other, and when it is considered how so little energy is required to give that sociability so that men and women on the land can secure a fuller life, it is surprising that the rural organizations headed by the council have never taken up the question seriously. The rural school house by being used in the evenings and becoming an ideal meeting place for the whole community, is an instance of what can be done to make life worth living in the country, particularly to newcomers. And yet, except in very few places the rural school house is closed to grown ups. It is to be hoped, in view of the large immigration expected after the war that rural authorities will seriously take into consideration their responsibility in making their respective districts attractively social to those who would till the soil and so add an essential attraction to the prairies of Canada.



Resources of Prairie Provinces

MANITOBA.—Coal, (Lignite), Iron, Gypsum, Salt, Building Stones, Agriculture, Dairy, Livestock.

SASKATCHEWAN.—Coal, Clays, Agriculture, Dairy, Livestock, Lumber.

ALBERTA. — Coal, Clays, Gypsum, Salt, Bituminous Sands, Petroleum, Natural Gas, Agriculture, Dairy, Livestock, Lumber.

Province of Manitoba

Area, square miles	251,832
Area, Assessed by Municipalities, acres	20,988,265
Area, Under Cultivation, acres	6,919,341
Population	521,123

Cities.—Brandon, Portage La Prairie, St. Boniface, Winnipeg.

Towns.—Birtle, Boissevain, Beausejour, Carberry, Carman, Dauphin, Deloraine, Emerson, Gladstone, Hartney, Killarney, Melita, Minnedosa, Morden, Morris, Neepawa, Oak Lake, Rapid City, Rivers, Roblin, Russell, Selkirk, Souris, Stonewall, Swan River, The Pas, Transcona, Tuxedo, Virden.

Mixed Farming.

Manitoba is the oldest settled portion of Western Canada. Some of the richest soil is still open for homesteads.

There are still about two million acres open for free homesteading in the older part of the province. This portion of the province is well served by railways, has a very rich deep soil which produces large yields and for mixed farming has many natural advantages.

In most sections of the province and more particularly in the Northern Districts the land is well threaded with clear, running, gravel bottomed creeks and streams, and there is an ample supply of wood along the rivers and in the hills.

Manitoba does not produce nearly enough agricultural and dairy products to supply her own needs.

In the year ending March 31st, 1913, the Province imported these products to the extent of nearly two million dollars, and still imports creamery butter from New Zealand and milk and cream from the United States.

The market for the products of mixed farming is easily available. The whole province is connected up with Winnipeg by rail and Winnipeg is the marketing centre of the West.

It is estimated that the city of Winnipeg requires for its annual food supply: Over two million bushels of wheat, ten million quarts of milk, nine and a half million pounds of butter, five million dozen eggs and nearly two and a half million pounds of cheese; 37,000 hives, 60,000 hogs and 40,000 sheep; 1,000,000 bushels of potatoes and other vegetables in proportion.

In the pickle factories in Winnipeg at least 25 per cent of the vegetables used are imported.

It is said that Winnipeg alone pays out over \$20,000 per day for garden truck that could be grown in the immediate neighborhood.

The grain crops produced in 1915:

Wheat, 97,000,000 bushels, from 3,660,930 acres. Average, 26.3 per acre.

Oats, 101,000,000 bushels. Average 47.7 per acre.

Barley, 35,281,095 bushels. Average 34 per acre.

LIVESTOCK.

In Manitoba are to be found all the elements essential to the profitable production of all kinds of livestock; the fodder crops are unexcelled, the climatic conditions are excellent. From the marketing standpoint, there is near at hand the market hub of the entire country, the stockyards at Winnipeg, which have a capacity for handling 448 carloads of livestock.

Horses.

In 1910 no less than \$10,000,000 worth of work horses were shipped into the province from Eastern Canada and the United States. In 1912-13 these conditions had changed and most of the horses used in the province were home bred. The number of horses in the province in 1913 was about 301,000 and this had increased in 1915 to 330,000.

Cattle.

The province is capable of providing for tens of thousands more cattle than are now produced. The total number in 1912 was 429,000, and this had risen in 1915 to 631,000.

Sheep.

The Winnipeg market is supplied at present mostly from the Western ranches. Sheep farming can be conducted with advantage in most portions of the province. There were 14,422 sheep in 1907, and this had increased in 1915 to 76,577. The average annual woolclip is about 225,000 lbs.

Swine.

The number of hogs has been steadily increasing; the total number in 1912 was 216,640 and this had increased in 1915 to 286,433. It has been estimated that the cost of producing one pound of pork is four and four-fifths cents.

This figure was arrived at from experiments made at the Manitoba Agricultural College in 1912. It will readily be seen from this what the possible profit is in the production of pork for the market.

Receipts at Winnipeg Stock Market From Points in Manitoba, During 1916.

Cattle	76,474
Sheep	12,614
Hogs	106,739

Forests.

Manitoba is not a wood producing province. As in the other prairie provinces, the greater part of the energy of the population is devoted to the production of food products, their preparation for the market and their marketing. The forest resources under existing conditions are not sufficient in quantity or suitable in quality to supply the needs of the population. Certain classes of woods, notably hardwoods, do not exist in commercial quantities and must be imported. The existing forests are often not convenient to the best farming land.

West of the Red River, in the southern portion of the province, there are several hill districts that still have a quantity of standing timber. These have been set aside by the Dominion Government as forest reserves. These reserves are: Turtle Mountain, 69,920 acres; Spruce Woods, 143,680 acres; Porcupine, 759,040 acres; Duck Mountain, 987,680 acres.

Manitoba's lumber production in 1915 was:

Lumber, M. Ft. B. M.	42,357	Value.	\$549,430
Shingles, thousand	81		149
Lath, thousand	8,910		14,197

Of the lumber cut, 93.0 per cent was spruce.

Crops in 1916.

Wheat.	30,439,600 bushels, from	2,994,529 acres
Oats	67,729,922 "	2,062,411 "
Barley	24,116,141 "	1,153,660 "
Flax	587,635 "	55,608 "

Total	6,266,208 acres
Rye	633,371 bushels, from 32,559 acres
Potatoes	9,080,602 " " 62,581 "
Other Roots	3,849,132 " " 18,561 "
Fodder Corn	204,955 tons, " 34,960 "
Timothy and clover,	
Grasses and Alfalfa.	286,714 " " 160,519 "

Dairy Products.

Production of butter in 1916 10,997,799 lbs.

Production of cheese in 1916 889,728 lbs.

It is estimated that Winnipeg alone requires over 9,500,000 lbs. of butter per annum. It will be seen from this how far short of supplying her own needs in this respect the province is.

WATER POWERS.

Winnipeg River.

This river is one of the most important power rivers on the continent, draining an area of some 55,000 square miles into Lake Winnipeg. The watershed of the Winnipeg River lies for the most part in Ontario and across the boundary of the United States. Its power possibilities, however, of greater magnitude are included in the Province of Manitoba.

At six sites on the Winnipeg River, all within less than 75 miles of Winnipeg, it is estimated that the available power is between 300,000 horsepower and 500,000 horsepower.

The Winnipeg Municipal plant and the plant of the Winnipeg Electric Railway are developed and aggregate a turbine capacity of 79,700 horsepower. The Municipal plant is at Pont du Bois, 77 miles from the city of Winnipeg.

The proposed development of the Slave Falls site will produce when completed 44,000 horsepower which will be the commercial output for twenty-four hours per day.

The Seven Sisters sites. It is expected that these will develop 67,500 horsepower.

McArthur Falls site. This is expected to develop seven-teen 2,500 horsepower units.

DuBonnet Falls site 64 miles from Winnipeg. Initial installation seven 10,000 horsepower turbines. Ultimate development 95,500 horsepower.

MANITOBA — (Continued)

Pine Falls site. Ultimate capacity 63,000 horsepower.
Pinawa Channel. Distant from Winnipeg, 65 miles. Winnipeg Electric Co. development here, 28,200 horsepower.
Grand Falls. Winnipeg River Power Co. installing eight 21,000 horsepower turbines.

Fairford River, Dauphin River. These rivers form with Lake St. Martin, the connecting links between Lakes Manitoba, Winnipeg and Winnipegosis. Drainage area about 31,900 square miles.

There are four separate sites on these rivers capable of developing 28,860 horsepower continuously.

Waterhen River. Joins Lake Winnipegosis and Lake Manitoba. Possible development, 6,800 horsepower.

Mossy and headwaters of Lake Dauphin. Several small sites suitable for power development.

Red River Tributaries. Little Saskatchewan which flows into the Assiniboine in the south-west portion of the province and thence into Red River has several undeveloped sites. The principal developments are at Minnedosa and Brandon.

Assiniboine River. Site 12 miles from Brandon, at Curries Landing, capable of developing for eight months of the year 1,369 horsepower.

There are numerous other rivers flowing into Lake Winnipeg from the east which have valuable water power sites.

Nelson River.

The outlet of Lakes Winnipeg, Manitoba and Winnipegosis flows into Hudson Bay 430 miles from Winnipeg, with a drop of 700 feet. It is estimated that there is available on this river, 2,500,000 horsepower.

Churchill River. Flowing into Hudson Bay. Watershed, 114,150 square miles. Great possibilities for water power development. No survey has been made.

MINERALS.**Coal.**

In the Turtle Mountain district in Southern Manitoba, there are beds of low grade coal (Lignite). This coal is high in moisture, and although it may be used locally will not stand long transportation. The coal area is about 20 miles by 40 miles.

This coal may be prepared for general use by adopting proper scientific processes.

Gypsum.

There are large deposits of Gypsum in the Townships lying north of Lake St. Martin, about 170 miles north of Winnipeg. The crude gypsum is shipped from the mines to Winnipeg and there manufactured.

Building Stones.

Limestone for building purposes is quarried at Tyndall, Stonewall, Stony Mountain, Rockspur and Gunton, near Winnipeg. Granite on the east shore of Lake Winnipeg. Sandstone on the shores and islands of Lake Winnipeg and in the Turtle Mountain District, near Boisvevian and De-

loraine. Marble of high grade is found on Marble Island in Hudson Bay.

Iron.

Iron is found on Black Island in Lake Winnipeg, at Cross and Pipestone Lakes and at points on the Hudson Bay Railway. There are still large areas to be prospected.

Salt.

Salt springs of varying strength exist at the mouth of the Bell River, near Salt Point and on the Red Deer Peninsula in the southern part of Lake Winnipegosis. The Prairie Lime and Salt Co. have operated in this district, at Mafeking, but no production was reported for 1915.

Manufactures.

There are 439 factories in the province, distributed among the following industries:

Aerated and mineral waters 4, Artificial ice 1, Agricultural implements 6, Butter and cheese 25, Boots and shoes 1, Boot and shoe supplies 1, Bread, biscuits and confectionery, Brick, tile and pottery 25, Boats and canoes 3, Boilers and engines 1, Babbitt metal 1, Brass castings 1, Carriages and waggons 6, Carriage and wagon materials 2, Clothing (men's custom) 2, Clothing (men's factory) 7, Clothing (women's custom) 4; Cement blocks and tiles 5, Cooperage 1, Car repairs 9, Cut stone 7, Cotton bags 3, Cars and car works 1, Coffees and spices 3, Coffins and caskets 1, Dyeing and cleaning 8, Electric light and power 9, Electrical apparatus 3, Elevators 1, Foundry and machine shop products 11, Firemen's supplies 1, Flour and grist mill products 36, Furniture and upholstered goods 1, Glass (stained, cut and ornamental) 2, Gas lighting and heating 2, Gypsum 1, Housebuilding 15, Hosiery and knit goods 1, Hats, caps and furs 5, Harness and saddlery 4, Iron and steel products 4, Inks 1, Interior decorations 2, Jewellery and repairs 3, Log products 32, Lumber products 22, Liquors (malt) 6, Leather (tanned, curried and finished) 2, Lightning rods 1, Malt 1, Musical instruments 1, Monuments and tombstones 2, Mattresses and spring beds 4, Macaroni and vermicelli 1, Oils 2, Plumbing and tinsmithing 10, Portland cement 2, Printing, publishing and bookbinding 45, Pumps and windmills 3, Patent medicines 1, Prepared foods 2, Paints and varnishes 3, Plaster 1, Paper boxes and bags 2, Picture frames 1, Plumbers supplies 1, Roofing 5, Rubber and elastic goods 1, Slaughtering and meat packing 4, Ships and ship repairs 1, Stationery goods 1, Shooks (box) 1, Soap 2, Silversmithing 1, Soda water apparatus 1, Tobacco 7, Tallow (refined) 1, Vinegar and pickles 2, Wooden boxes 1, Wire-fencing 3.

These factories employ 17,327 persons, pay out in salaries and wages \$10,912,866, pay for material \$30,499,835 and have an annual output of \$53,673,609. The aggregate capital employed is \$47,941,860.

Deducting the amount paid in salaries and wages and the cost of material from the amount of the annual output, there remains a gross profit of \$12,260,908, equal to 25.57 per cent on the capital employed.

BETTER DISTRIBUTION OF IMMIGRATION WANTED.

"In Canada we have an unsound economical condition in the distribution of our population throughout the whole of the Dominion. In Western Canada, with a total population in the four western provinces of less than the population of the Province of Quebec, we find the unsound distribution between the urban and rural communities of 43 per cent urban and 57 per cent rural. This unsound condition also exists to a greater or less extent in the older provinces, and the distribution in the Dominion as a whole to-day is about 45 per cent urban and 55 per cent rural. These facts are, in themselves, sufficient to indicate the pressing necessity for increasing our population as a whole and properly distributing the increase, so as to correct this unsound division between the producers and consumers.

"Our effort in our future colonization campaign must be to obtain a greater proportion of immigrants to take up and cultivate our land and to discourage the immigration of laborers, either skilled or unskilled, to any greater extent than can be readily assimilated through extension of our industrial development."—J. S. Dennis.

"What Canada needs is more manufacturers who will produce from raw materials obtained in Canada, rather than from raw materials which must be imported from foreign countries into Canada."—J. Hewitt, President Toronto Board of Trade.

A SELF-SUPPORTING CANADA.

The President of the British Board of Agriculture is credited with saying that the United Kingdom would always be in a dangerous position until it was more independent of the foreign producer.

There seems to be a moral in that remark for Canada also. No country can afford to be economically dependent upon another. No country in fact is so, but it may by neglect or otherwise come perilously near it.

After the war Canada must set out in real earnest to fulfil her great destiny as the country of the Twentieth Century. The first step in that direction is to make sure of her foundations by investigating the extent to which her inheritance has been alienated and her home markets captured by outsiders, particularly by the present enemy nations.—Montreal Daily Mail.

DEVELOP DOMINIONS.

"We have been taught by war the real value of Empire, and one of the first duties of the statesmanship of the future will be to take the necessary measures to aid the development of the stupendous resources we possess. That ought to be our special care and our special pride, as it undoubtedly will be our special security. We want to develop the lands under the flag.—Premier Lloyd George, at London Guildhall.

Rural Credit Societies in Manitoba

A very interesting experiment in co-operative development is being worked out in Manitoba under the new Rural Credits Act, between the Provincial Government the Rural Municipalities and the Farmers. A summary of the Act and its meaning has been published by the Government, which reads as follows:—

The Rural Credits Act, passed at the 1917 session of the Manitoba Legislature, provides for the organization by Manitoba farmers of rural credit societies, through which the individual shareholders of such societies may be enabled to secure short term loans for carrying on or extending their farming operations. Such loans will be secured on the security of the crop for the production of which the loan is secured, or the live stock, or the machinery bought with the money thus borrowed. The money will be secured from the bank at 6 per cent., and the borrower will be charged 7 per cent., the difference going to pay expenses of the society and augment the guarantee fund.

Basis of Organization.

The plan under which such rural credit societies can be organized may be briefly summarized. Each member of the society takes stock to the amount of \$100. The Provincial Government takes stock to an amount equal to half that subscribed by the members of the society, and the municipality within the boundaries of which the members of the society live and carry on their farming operations takes stock to the same amount as the Government.

The proceeds of this stock forming a guarantee fund as the basis for credit, the society will be enabled to secure credits for its individual members to a total of many times the amount of the subscribed stock. For example, if a society is organized with a membership of fifty farmers, taking \$100 of stock each, it would start with a capital of \$10,000, as follows:

Fifty farmers at \$100 each	\$ 5,000
The municipality, half of above	2,500
Government of Manitoba, half of above	2,500
	\$10,000

It is provided that the municipal subscription need not be in actual cash, but may be in bonds of the municipality. With such a capital, and the society becoming responsible for each loan made to its members, after duly passing upon same, it is anticipated that loans to a total of at least \$100,000 could be secured from the bank or banks with which the society arranged to do business.

How Societies May be Organized.

The Act provides that when at least fifteen farmers in any district have decided to organize a rural credit society they shall make application by petition to the Provincial Secretary and if the application is in order the Government will then issue letters patent, incorporating the society. The Government is then required to appoint an officer to act as secretary and treasurer of the society until the organization of the society has been completed and a permanent secretary and treasurer appointed.

No society may commence business until it has received subscriptions to its capital stock from not less than fifty persons actually engaged in farming, or who have agreed to engage within one year in farming operations, and these must subscribe for stock to the amount of not less than \$5,000, upon which not less than 10 per cent. must have been paid.

Board of Directors.

When organization of the society is complete, the management of the business is vested in a board of nine directors, three elected by the members of the society, three named by the municipality, and three appointed by the Government of Manitoba.

The directors appointed by the Government must include a graduate in agriculture, who becomes Government Supervisor of Agriculture in the district. One of the directors acts as secretary of the society and must be a capable accountant. The secretary will be the only officer paid by the society.

Purposes for Which Loans May be Secured.

The Act provides specifically that short term loans secured for members for paying the cost of farming operations of all kinds and increasing the production of farm products shall be for any of the following purposes:

- (1) The purchase of seed, feed or other supplies;
- (2) The purchase of implements and machinery;

(3) The purchase of cows, horses, sheep, pigs and other animals;

(4) The payment of the cost of carrying on any farming, ranching, dairying, or other like operations;

(5) The payment of the cost of preparing land for cultivation.

It is also provided that the rural credit society may act as agent for the members in purchasing supplies and selling products, and may also take steps to promote co-operation for the improvement of conditions of farm life, and to extend the application of the society's activities to all residents of the district.

Terms and Conditions of Loans.

All notes covering loans will mature not later than the 31st day of December of the year in which the loan is made. Where the loan is for machinery or live stock, or for any other purpose from which returns cannot reasonably be realized by due date, the loan may be renewed from year to year on approval by the directors of the society.

The security given by the borrower to the society will be the animals, machinery, goods or personal property of any kind purchased, or partly purchased, with the proceeds of the loan obtained through the society, together with the offspring of such animals and the crops or other products grown upon any lands for the working of which such loan has been secured.

The directors of the society will be responsible for making all necessary enquiry as to applications for credit made by its members, and, if the application is approved, shall endorse same and pass it along to the bank with which the society is doing business.

The directors shall hold one or more meetings in each of the months of March and April in each year for the consideration of applications for loans, and shall hold such other meetings as may be required from time to time, on the call of the president or on the written request of any three members of the board, delivered to the secretary.

The Act provides that all municipal, provincial, or school buildings may be used by any society for any meeting of its board or members, or for any meeting held under its auspices. No charge can be made for the use of such buildings for such purpose except for necessary expenditure occasioned by such meetings.

Audit.

Books and records of all societies must be open at all times to the inspection of the supervisor. The Comptroller-General of the Province audits the books of the society once each year.

DEVELOP OUR NATURAL RESOURCES.

The only way Canada can prepare herself to take care of this great influx of labor is by developing the natural resources of the country. No development can take place without financial expenditure, and for years Canada has been securing capital in large quantities from Great Britain, France and Holland, and to-day, but for the war, we could have all we want from those sources. Now it will be a long time before large supplies will be available. We must look elsewhere. The United States was rolling in wealth, and why should not Canada secure some of it by a propaganda of education which would teach those over the imaginary boundary line what Canada really was, to create an interest in the Dominion which would lead to the granting of any amount of money for its development. Canada would then only be getting back some of her own.—J. S. Dennis, President of Society of Canadian Engineers.

CANADIAN PROSPERITY.

Canadian prosperity, it is true, has been brought about partly by war orders, but these constitute only a fraction of the nation's new industries. They have been most helpful in showing the country what it can do towards supplying its own needs. The war orders have tested the country's supply of raw material and the skill of its mechanics. When the war orders shall have stopped, Canada will be prepared to go on with the production of manufactured articles on a scale that it could not have attained in many years without the instruction and experience that have come with the demand for munitions. The war has cost Canada dearly, but the experience will not leave the country without some valuable compensation, especially in an enlarged knowledge of itself.—Christian Science Monitor.

Province of Saskatchewan

Area 251,000 square miles.
 Water Surface 5,323,520 acres.
 Municipalities: Rural. 297 Population . . . 141,386
 Urban. 383 Population . . . 239,738

381,124

Area assessed by municipalities . . . 50,126,702 acres.
 Municipal valuation . . . \$814,724,431

Principal Cities and Towns:

Moose Jaw, North Battleford, Prince Albert, Regina, Saskatoon, Swift Current, Weyburn Yorkton, Melville, Maple Creek, Humboldt, Estevan, Wolseley, Wilkie, Shauhavon, Rosthern, Outlook, Moosimin, Melfort, Kerrobert, Kamsack, Indian Head, Gull Lake, Canora, Broadview, Battleford, Assiniboia, Arcola.

MINERALS.

Coal.

The Souris coal field forms the northern extension of the North Dakota lignite bearing region. The area covered by this field exceeds 4,000 square miles, extending some 150 miles along the International Border, with an approximate average width of 25 miles north and south. Only a very small portion of this field is being worked or has been studied in detail. The largest operations have been carried on at Estevan on the St. Paul line of the C. P. R.

The lignite is low in fixed carbon and high in moisture, which makes it difficult to transport or store without great loss.

It is estimated that this district is capable of producing 10,000,000 tons to the square mile.

The coal is an excellent fuel for gas producers. The annual output is about 200,000 tons, which is sold locally and in Manitoba.

Clays.

Clay suitable for bricks is found in many parts of the province.

In the Dirt Hills, south of Moose Jaw, white and grey refractory clays are found suitable for the manufacture of firebrick, pressed brick, sewer pipe, etc.

AGRICULTURE.

A line drawn from East to West a little north of Prince Albert marks the division between the agricultural south and the practically unexplored north.

The great prairie lands lie south of Township 64. This area contains 86,826,240 acres of which possibly 50,000,000 acres rank as arable land of first or second class. About half of the southern portion is level or undulating prairie; the remainder varies from open park country with light poplar bluffs to rougher land in the district east and north of Prince Albert, heavily timbered with spruce.

According to the Dominion Census of 1911, the land occupied at that time in Saskatchewan was 28,642,985, of which 16,771,078 acres were unimproved. The possible farm land in the province was estimated by the same authority at 93,458,000 acres.

Northern Saskatchewan is not yet opened to any extent for settlement. There are approximately 80,000,000 acres beyond the Railway at Prince Albert which will ultimately be accessible. It is estimated that Northern Saskatchewan has natural resources sufficient to maintain a population equal to that of any European country in a corresponding latitude.

The following table shows the production of the four principal grain crops for the year 1915, and the portion exported from the province:

Grain.	Production (Bushels)	Exported (Bushels)	Percentage Exported.
Wheat	215,027,517	195,000,000	90.68%
Oats	162,282,428	45,000,000	27.72%
Barley	11,865,646	3,250,000	27.39%
Flax	5,281,234	4,000,000	75.74%

From the above it will be seen that the province loses the profit on the manufacture of over 90 per cent of her wheat crop, of over 75 per cent of her flax.

In the prairie provinces flax is grown at present only for the seed, which is purchased by the linseed oil mills in Canada and the United States. The straw has been burned, as the fibre is too short and too poor in quality for the manufacture of linen fabric or thread.

It is estimated that ten tons of flax straw will make one ton of high class "half stuff" for paper, worth from \$140 to \$200 per ton. At these prices a dividend of seven per cent can easily be earned on an invested capital of \$500,000, the probable cost of a plant to produce ten tons daily, with an allowance for working capital.

Root Crops.

Potatoes occupy the most important place in the root crops, being 70 per cent of the total acreage. In 1915 the total production was 4,311,440 bushels.

LIVESTOCK.

The Department of Agriculture of the province has adopted the policy of assisting farmers in the purchase and distribution of livestock, and under the Act passed in 1913, farmers accredited by any farmers organization may purchase livestock from the department on cash 50 per cent or 25 per cent terms. This has been successful in building up the livestock industry. The livestock supplied to the farmers under the act up to 1915 were:

Cattle	1,377
Sheep	3,649
Swine	7

This stock was supplied at a cost of \$162,575.04 to 549 farmers.

The livestock in the province in 1916, were:

Horses	646,633
Milch cows	218,230
Other cattle	556,710
Sheep	138,350
Swine	334,489

There is an immense area of first class grazing land in the central part of the province. The native grasses and pea vine are unsurpassed for the development of large steers, but an immense quantity is not utilized at present owing to the sparseness of the population and the limited development of the livestock industry. In this part of the province there is an abundance of natural shelter and water, making the conditions ideal for the growth of livestock.

Dairying.

The Provincial Government maintain co-operative creameries under government supervision. There are 17 of these creameries, as well as 10 private ones. The production for 1916 amounted to about 4,000,000 lbs., the co-operative creameries being responsible for 2,538,061 lbs. of this total.

The marketing of the produce of the creameries, both co-operative and private, is undertaken by the dairy department of the Department of Agriculture.

The production of cheese is practically nil.

Wool.

The Department of Agriculture markets co-operatively the wool clip of the province.

In 1916 the wool marketed in this way amounted to 176,701 lbs. at an average price of 32½c.

FORESTS.

Prince Albert is the centre of the lumbering industry of the province. The country north and east of this point is heavily timbered with spruce, tamarack and a sprinkling of jack pine. It has been estimated that in the 27,000 square miles accessible by present logging operations there are 2,100,000,000 ft. board measure of spruce, and that in addition, including the 88,000 square miles north of the Churchill river, there is sufficient standing timber to bring the total for the province up to 3,350,000,000 feet.

The timber lands are under the control of the Dominion Government.

Lumbering operations are carried on at Green Bush, Sturgeon Lake, Crooked River and Etomani.

SASKACHEWAN, (Continued).

The lumber production for 1915 was:

	Value.
Lumber, M. ft. B. M.	62,864 \$880,353
Lath, thousand	23,611 47,222
Shingles, thousand	404 910

It will be seen from the above figures that there was no pulpwood produced in the province. So far spruce, which is used in enormous quantities elsewhere in Canada for the manufacture of pulp, has not been used in the prairie provinces for this purpose.

With the enormous quantities of this wood available in the northern portion of this province, there would seem to be a great opportunity for the profitable development of the pulp and paper industry.

MANUFACTURES.

There are in Saskatchewan, according to the census of 1911, 173 factories, divided among the following industries:

Aerated and mineral waters 6, Butter and cheese 27, Brick, tile and pottery 15, Boilers and engines 2, Car repairs 16, Cement blocks and tiles 2, Dyeing and cleaning 1, Electric light and power 6, Furniture and upholstered goods 1, Foundry and machine shop products 4, Flour and grist mill products 21, House building 2, Log products 11, Lumber products 13, Liquors (malt) 3, Printing, publishing and book-binding 38, Pumps and windmills 1, Oils 1, Soap 1, Slaughtering and meat packing 3, Tobacco 1.

These factories employ 3,240 persons, pay out in salaries and wages \$1,648,284, pay for material \$2,747,266, and have an output of \$6,332,132 annually. The aggregate capital employed amounts to \$7,019,951.

Deducting the amount paid in salaries and wages and the cost of material from the amount of the annual output, there remains a gross profit of \$1,936,582, equal to 27.44 per cent on the capital employed.

WATER POWERS.

South Saskatchewan River.

Many towns and cities in the southern part of Saskatchewan and where the natural water supplies have not been sufficient to keep up with the demand, have been responsible for a diversion scheme to dam water into a storage basin, and pump to adjacent heights of land to be distributed by gravity.

Below the forks of the Saskatchewan River five good sites are available. Grand Rapids is particularly noteworthy. 40,000 horsepower could be developed at this site for continuous output and can be materially increased by storage basins in the river above, as for about six months in the year water is available for about 300,000 horsepower.

North Saskatchewan River.

The most pronounced fall is at Cole Falls about 25 miles below the city of Prince Albert, where a power plant is at present under construction by the city.

Churchill River.

Watershed about 114,150 square miles. Great possibilities for development.

Province of Alberta

Area	255,285 sq. miles.
Municipalities: Rural.. 87	Population . . . 135,949
Urban..156	Population . . . 238,714

374,663

Area assessed by Rural Municipalities . . 14,056,860 acres.

Principal Cities and Towns.

Calgary, Edmonton, Lethbridge, Medicine Hat, Red Deer, Wetaskiwin, Bassano, Camrose, Coleman, Lacombe, Macleod, Red Cliff, Taber, Vegreville, Beverley, Castor, Claresholm, Cardston, Coronation, Edson, High River, Magrath, Olds, Pincher Creek, Raymond, Stettler, St. Albert, Vermilion.

MINERALS.

Coal.

Alberta possesses by far the most extensive coal areas of any Province of Canada—in fact, the greater part of the south-eastern part of the Province appears to be underlaid with coal. The area is estimated at not less than 30,000 sq. miles. The coal beds in the western edge of the area contain seams approaching bituminous, but in the eastern part the coal is sub-bituminous.

The coal of the Blairmore-Frank field, served by the Crows Nest Pass branch of the C. P. R., is generally of good quality, though high in gas. It yields a good coke when sufficiently pure or after washing. There are twelve large collieries in operation.

Cascade mountain region, on the main line of the C. P. R., centres Canmore and Bankhead. The coal of the Bankhead mine is very high in fixed carbon and practically an anthracite. It requires a good deal of sizing and screening. The dust is used for the manufacture of briquettes.

Good seams have been discovered in the region of the Kananaskis River.

Further north important areas have been discovered in the Bighorn basin, between Saskatchewan and Brazeau Rivers.

Important developments have also taken place along the line of the Grand Trunk Pacific.

In 1915, the coal production of the Province was 3,434,891 tons, of which 1,682,932 tons were lignite, 1,626,237 bituminous, and 125,732 anthracite.

Clays.

Clay products are being manufactured on an extensive scale at Medicine Hat and Redcliff. Clay ironstone is found along the Red Deer River, west of Handhills but nothing has been done to develop it. Brick clays are being used chiefly at Calgary, Edmonton, Redcliff (Lethbridge, Medicine Hat, Sandstone, Red Deer, etc.

Gypsum.

There are large deposits of gypsum near the mouth of the Peace River, and north of the City of Edmonton, at several localities in the district tributary to the Mackenzie River. These deposits are not being utilized.

Salt.

There are many salt water springs in the vicinity of the Slave and Athabasca Rivers; large quantities of rock salt in the vicinity of Fort McMurray on the Athabasca. The water of Salt River, a tributary of the Athabasca, is very salty. Ten miles from its mouth a district called "Salt Country" is reached. No attempt has been made to develop these commercially.

Sand.

Sand suitable for glass making is found in abundance along the banks of the Lower Athabasca River.

Bituminous or Tar Sands.

In a district extending on both sides of the lower Athabasca River, there immense deposits of sand saturated with tar, which are supposed to have been produced by petroleum welling up from the underlying sandstones. These beds vary in thickness from 140 to 220 feet, and are estimated to have an extent of 1,000 sq. miles.

These sands can be used for roofing, paving, electric insulation, and be mixed with the coal of the same district (lignite) for making briquettes.

It is thought that immense quantities of petroleum lie somewhere beneath these sands. Several wells have been drilled, however, without results.

Petroleum.

Oil was first discovered in the Calgary field in 1913. In the summer of 1914, oil was struck in three additional wells. In May, 1915, operations were being conducted in over 20 wells. It has been proven that a district 2 miles by 3½ miles is underlaid with oil, but the field is not yet on a commercially productive basis.

There are oil springs at several points in Great Slave Lake, and indications of oil at various points along the Peace River.

At Pincher Creek, southwest of Macleod, oil has been struck in several places.

Natural Gas.

Natural gas is plentiful in Alberta. It is used along the C. P. R. in the neighbourhood of Medicine Hat. The City

ALBERTA (Continued).

of Medicine Hat has 14 wells in operation. The Canadian Western Natural Gas, Light, Heat and Power Co. has 180 miles of main line piping to Calgary and branches to Macleod, Clareholm, Nanton, Okotoks, Brooks, Sandstone and other places.

Gas has also been struck near the mouth of the Pelican river, a tributary of the Athabasca, and at different points on Peace and Athabasca rivers. There is a productive well near Wetaskiwin, which supplies that municipality.

Agriculture.

Alberta may be divided into three divisions: Southern, Central and Northern.

The Southern district is open and rolling, and devoid of timber except along the streams and in the Rocky Mountain foothills.

The Central district extends from Red Deer River northward to the height of land between the Saskatchewan and the Athabasca. Its great wealth is in its deep black humus varying in depth from ten inches to three feet, overlying a warm subsoil. The northern and western portions of Central Alberta have some brush land with soil equal to that of the open prairie. The cost of clearing is slight, and there is the advantage of shelter for cattle and an absolute assurance of splendid water. There is a good market for the fuel and timber obtained in clearing. Practically all of the land between Edmonton and Athabasca and between Edmonton and LaBiche to the northeast has been subdivided for homesteading.

The Northern district. North of the end of steel extends 75 per cent. of the Province, which as yet is unexploited. This portion of the country will be opened up when the railways push into the Athabasca and Peace River countries. This northern portion varies from great open stretches of prairie land to heavily timbered regions, the whole watered by majestic rivers. The banks of these rivers are usually covered for miles back with dense timber—spruce and cottonwood predominating.

It is estimated that there are in Alberta 100,000,000 acres of arable land.

Area under homesteads 20,456,000 acres.

Approximate Crops for 1916.		Root Crops in 1915.	
	bushels.		bushels.
Wheat	36,638,00	Potatoes	5,155,000
Oats	77,311,000	Turnips and other	
Barley	5,075,000	roots	1,356,000
Flax	953,000		
Rye	366,000		

LIVESTOCK.

The climate of Alberta is peculiarly adapted to the raising of livestock. In the ranges of Southern Alberta, and in large part of the Peace River district all cattle, except dairy cows, spend the winter out of doors.

Cattle.

Most of the beef cattle are marketed at the abattoirs at Edmonton. Large shipments are made to Vancouver, Seattle, Spokane, Winnipeg, Toronto and Chicago.

In 1916 there were 188,205 milch cows, and 686,730 other cattle in the Province.

Sheep.

In Central Alberta farmers' flocks are proving very profitable. In 1916 there were 245,000 sheep in the Province. The sale of the wool-clip averaged about 30c per lb.

Swine.

The cost of producing pork in Alberta is from four and a half to five cents per lb., live weight. There are three packing plants at Edmonton and two at Calgary, where the hogs are chiefly marketed. The number of hogs in the Province during 1916 was 215,202.

DAIRYING.

Alberta is eminently suitable for dairying.

The production of butter for the year ending Oct. 31st, 1915, was 7,376,871 lbs.

Cheese to the extent of 100,000 lbs. was produced in 1915.

FORESTS.

The principal species in order of present importance are spruce, lodge-pole pine, Douglas fir, poplar, balsam fir, white birch and tamarack. Lumbering operations are now principally confined to the Rocky Mountains reserve, which contains all the lumber at present merchantable in Alberta. The northern portion of the Province still awaits development.

MANUFACTURES.

There are in Alberta, according to the Dominion Census of 1911, 290 factories, distributed among the following industries.

Aerated and mineral waters, 5; Artificial Ice, 1; Awnings, Tents and Sails, 4; Auto Repairs and Accessories, 1; Butter and Cheese, 56; Bread, Biscuits and Confectionery, 5; Brick, Tile and Pottery, 22; Car Repairs, 8; Carriages and Waggon, 1; Cement Blocks and Tiles, 2; Cut Stone, 3; Coffees and Spices, 1; Dyeing and Cleaning, 2; Electric Light and Power, 16; Foundry and Machine Shop Products, 8; Flour and Grist Mill Products, 25; Gas, Lighting and Heating, 1; Harness and Saddlery, 1; Housebuilding, 1; Iron and Steel Products, 2; Lime, 2; Log Products, 51; Lumber Products, 27; Leather (Tanned, Curried and Finished), 1; Liquors (malt), 5; Mattresses and Spring Beds, 3; Men's Furnishings, 1; Printing, Publishing and Book-binding, 16; Portland Cement, 2; Plumbing and Tinsmithing, 1; Rubber and Elastic Goods, 1; Slaughtering and Meatpacking, 3; Show Cases, 1; Soap, 1; Sugar (refined), 1; Tobacco, 3; Vinegar and Pickles, 1; Wooden Boxes, 1.

These industries employ 6,980 persons, pay out in salaries and wages \$4,366,661, pay for material \$9,998,677, and have an annual output of \$18,698,726. The aggregate capital employed is \$29,518,346.

Deducting the amount paid out in salaries and wages and the cost of material from the output, there remains a gross profit of \$4,333,388, equal to 14.65 per cent. on the capital employed.

Water Powers of Alberta

Bow River.

Drainage area, 3,138 sq. miles, immediately west of Calgary. Developments on this river at Eau Claire, in the City of Calgary, Horseshoe Falls, and Kananaskis Falls.

The Eau Claire plant has a present capacity of only 600 h.p.

Horseshoe Falls, 50 miles from Calgary. Power development here aggregates 19,500 h.p. from plant of four turbines, operated by Calgary Power Co. A large portion of the power generated here is transmitted to Exshaw, for use in the cement works.

Kananaskis Falls.—Power generated, 13,000 h.p. Operated by Calgary Power Co.

Possible Development.

Bowfort, 4 miles from Horseshoe Falls, capacity 12,000 h.p. Mission, below Bowfort site. Three turbines, each of 3,500 h.p. could be installed.

Ghost site, mouth of Ghost River. Three turbines of 3,500 h.p. each could be installed.

Radnor, 3½ miles below Ghost River. Three turbines of 3,500 h.p. each could be installed.

Cascade, on Lake Minnewanka.—A plant is being installed here of three generating units of 600 h.p. each, for transmission into Banff.

North Saskatchewan River.

Rock Rapids.—Capable of producing 30,000 h.p. for Edmonton market.

Athabasca River.

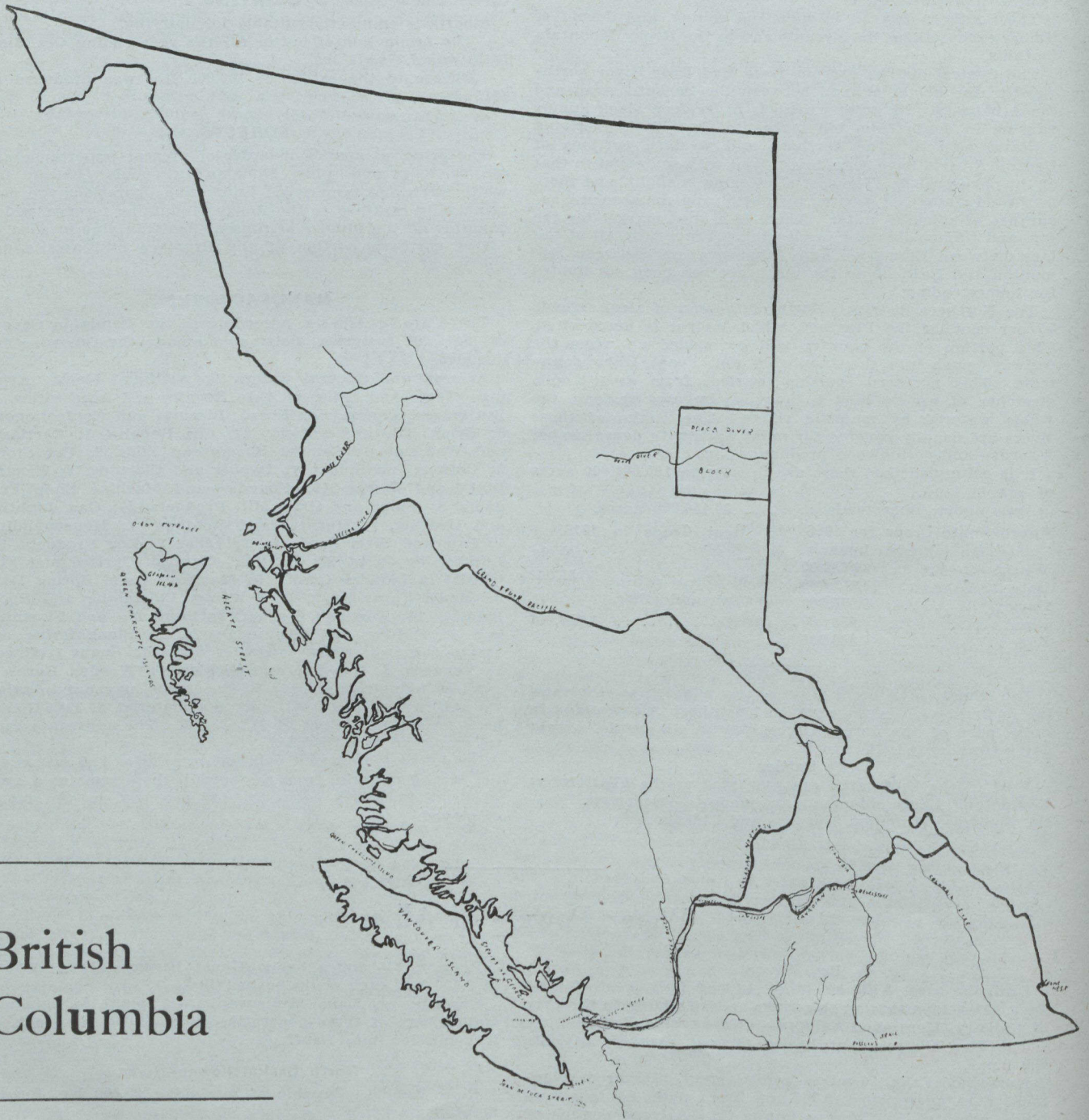
Drainage area, 39,000 square miles. Above Grand Rapids, about 160 miles below Athabasca Landing, a turbine output of 94,000 h.p. is available. A good market for this power exists at Edmonton.

Slave River.

This river has a fall of 170 feet between Lake Athabasca and Great Slave Lake. In one stretch there are 16 miles of rapids.

Resources of British Columbia

Coal, Iron, Copper, Lead, Antimony, Molybdenite, Platinum, Tungsten, Magnesite, Gypsum, Salt, Zinc, Fruit, Livestock, Lumber, Fisheries, Agriculture.



British
Columbia

Province of British Columbia

A very interesting fact has been brought home to us in our investigation of the resources of British Columbia, namely, that the urban municipalities are geographically in the centre of the producing districts, or well situated for shipping. This means that the cities will grow naturally as the local resources are developed—good illustrations of the inter-dependence of the human material and the raw material. Another feature that is, and will be still more, a factor in the development of the Province is the local pride of the citizens and the keen interest taken in local public affairs—with the consequence that the local authorities are composed of the best men in the district who are not slow in resenting anything like undue interference from provincial officials.

As an exporting and importing province British Columbia has great shipping facilities in her harbours, but strange to say that though the great markets of the Far East, Siberia and Russia and South America are potentialities worth much study, only a vague interest has been taken by the Provincial and Municipal authorities in the wonderful possibilities of British Columbia as a trading Province; the propaganda and development work being left in the hands of private concerns and the Federal authorities through the Department of Trade and Commerce. With the exception of the Canadian Pacific steamers the province has no shipping worthy of the name, though three great transcontinen-

tal railways have their terminus on the coast. Much was expected, when the Panama Canal was opened, from the shipping that would bring new business to the ports of B.C., but so far the wish has not materialized. No doubt after the war, when many ships will be released, more trade will accrue, but experience has taught us that that nation is best off which has its own ships, built in its own yards. And British Columbia is particularly well adapted for shipbuilding.

While there is much private capital in the province, very little of it is invested in the local industries, which have been developed largely on foreign capital. In other words, the foreigner has more confidence in the province than the native—with capital. This lack of confidence on the part of the local investor is not singular to British Columbia. This weakness is found in Quebec, particularly in the lumber, pulp and paper industries, which are controlled principally by American capital, though Montreal has enough spare capital to have financed every pulp and paper mill in the Province. The American capitalist, be it in British Columbia or any other province, has made good returns on his investments, so why cannot the Canadian investor do the same, and incidentally help in building up the country.

A study of the following pages will repay those who are anxious to get a line on the opportunities of our far western province.

BRITISH COLUMBIA.

Area 395,560 sq. miles.
Population about 350,000

The Province of British Columbia, which extends for about 700 miles from the United States border on the south to the 60th parallel on the north, with an average width of 400 miles, may be divided into three districts:

The Coast district.—That portion which lies between the Coast mountains and the ocean, including the islands which lie along the coast.

The Interior Plateau.—Lying between the Coast Range on the west and the Rockies on the east, and bounded on the north, roughly speaking by the Grand Trunk Pacific Railway.

The Northern District.—This lies to the north of the Grand Trunk Pacific Railway and has never been thoroughly explored.

CITIES AND TOWNS.

Alberni, Armstrong, Chilliwack, Courtenay, Cranbrook, Cumberland, Duncan, Enderby, Fernie, Grand Forks, Greenwood, Kamloops, Kaslo, Kelowna, Ladysmith, Merritt, Nanaimo, Nelson, New Westminster, North Vancouver, Phoenix, Port Alberni, Port Coquitlam, Port Moody, Prince George, Prince Rupert, Revelstoke, Rossland, Salmon Arm, Sanson, Slokan, Trail, Vancouver, Vernon, Victoria.

AGRICULTURE AND HORTICULTURE.

Wheat is principally grown in the Fraser, Okanagan and Spallumcheen valleys, and in the country around Kamloops. Oats are the principal grain crop.

The total annual agricultural production of the Province is about \$14,000,000.

There is about fifteen million dollars' worth imported.

The production (estimated) for 1916, was as follows:

Wheat,	508,000 bushels.
Oats	3,504,000 bushels.
Barley	104,000 bushels.

Potatoes are the principal root crop. The production for 1915 amounted to 77,300 tons, at an average market price of \$21.00 per ton.

Fruit.

It is estimated that one million acres, south of the 52nd degree, will produce all the fruits of the temperate zone.

The principal fruit crop is apples. The others are plums and prunes, strawberries, crab apples, peaches, cherries, pears, raspberries and apricots.

The total production for 1915 was valued at \$1,642,100.

Seventy-five per cent. of the fruit crop is marketed through co-operative associations by the growers.

The National Resources Department of the Canadian Pacific Railway Company divides the fruit growing area of the Province into eleven districts, the principal of which are:

Vancouver Island and adjacent islands.

The Lower mainland, west of the Coast Mountains and adjacent to the Fraser River.

The district of the Upper Fraser up to the 52nd parallel and including the main Thompson River and Nicola valleys.

The country surrounding Shuswap and Adams Lakes, the valley of the Spallumcheen River and the Armstrong district.

The Okanagan Valley.

The valley of the Similkameen and contiguous valleys.

The Boundary country.

West Kootenay.

LIVESTOCK.

The interior plateaus are peculiarly adapted to cattle raising. Practically all the beef raised is grown under range conditions. In the Fraser Valley the farmers have largely given up beef raising and have gone into dairying to supply the cities. The supply of beef cattle is only sufficient to supply the local demand for about six months of the year; for the balance of the year the supply is obtained outside the Province. In 1916 16,689 beef cattle and 800 dairy cattle were imported into the Province from the other provinces of Canada. The value of these cattle was well over one million dollars.

Sheep.

The demand for sheep far exceeds the supply. Many thousand head are annually imported from the neighbouring States and the eastern Provinces of Canada, and a large number of frozen carcasses from Australia. In 1915 the sheep imported into the Province were of a total value of over \$300,000.

BRITISH COLUMBIA (Continued).**Swine.**

As in the case of sheep, the demand far exceeds the supply. In 1915 over \$3,000,000 worth of hogs and cured products were imported into the Province.

DAIRYING.

An abundance of good water and luxuriant grasses on the Southern mainland and on Vancouver Island, together with a favourable climate make ideal conditions for this industry.

The production is now only equal to about half the demand. The output for 1915 was \$3,034,340.

MINERALS.**Coal.**

Fields—Crows Nest, Nicola Valley, Telkwa Valley, Groundhog Coal Field, Vancouver Island (East Coast), Queen Charlotte Islands.

The Crows Nest Pass field has an area of about 230 sq. miles. The total quantity of coal is estimated at about 22,595,200,000 tons. It is a high grade bituminous, occasionally running into anthracite.

There are mines at: Coal Creek (near Fernie), Michel, Corbin and Aldrich Creek (Elk Valley).

Immediately to the north of the Crows Nest Pass field and separated from it by a belt of underlying limestone there is another trough of coal bearing rocks which extends for a distance of about 50 miles, crossing into Alberta at the Kananaskis Pass. Owing to difficulty of access there has not been much active development of this area, but a railway line connecting with the C. P. R. at Michel has been located, and it is probable that before long this field will be exploited.

The Nicola Valley field has an area of about 50 sq. miles, and is situated south of Nicola Lake in the Kamloops district. There are mines at Merritt, Princeton, Coalmont and Middlesboro.

Telkwa Valley field.—This is situated in the northern interior portion of the Province, in close proximity to the line of the G. T. P. Some of these areas are of considerable extent. The character of the coal varies from a bituminous to a semi-anthracite.

There are mines at Lake Kathlyn and Seaton.

Groundhog Field.—This lies about 140 miles by trail north from Hazelton, near the headwaters of the west fork of the Skeena River. The coal is anthracite or semi-anthracite in character. The field is as yet only slightly developed, and it would seem that it will probably prove to be one of the most important developments that the Province has seen for many years. It extends in a north-westerly direction for about 75 miles, and has a width in places of about 30 miles.

Vancouver Island.—Vancouver Island has been the seat of a coal mining industry since 1836, and in recent years has not only supplied the local demand but has exported largely to the state of California. The fields now being exploited are situated on the east coast of the island. They are divided into two distinct fields, separated by a gap of twelve miles of crystalline rocks in the district of Nanoose. The northern area is the Comox field, and the southern one the Nanaimo. Another field until recently quite undeveloped is in the vicinity of Suquash, about 125 miles to the north.

There are mines at Nanaimo, Ladysmith, Cumberland, South Wellington, Suquash and Oyster Harbour.

Queen Charlotte Islands.—Mining operations are being carried on at Graham Island, the most northerly island of the group.

Iron.

Iron deposits: Gordon River (San Juan), Copper Island, Sarita River, Alberni Canal, Kennedy Lake, Maggie Lake, Head Bay, West Arm, Quatsino Sound on west coast of Vancouver Island, and Kla-anch River, Campbell River, Quinsam River, Texada Island and Redonda Island on the East Coast of Vancouver Island; and Rivers Inlet on the coast of the mainland. There are other iron deposits at Chemainua, Louise Island (Queen Charlotte group), Cowichan Lake, etc.

Copper.

British Columbia is at present the principal producing Province of Canada, copper bearing minerals being found in numerous localities in various parts of the Province. The important minerals are usually chalcopyrite or bornite or both.

The principal districts are in southern B. C., in the West Kootenay and Kamloops districts, and in the coast district at a number of points along the mainland, on Vancouver Island and some of the coastal islands. The most important producing mines are at Rossland, Phoenix, and Motherlode in the interior, and at Britannia or Howe Sound, Texada Island and Granby Bay on the coast.

The ores from the mines in the interior are smelted at Trail, Grand Forks and Greenwood; from the coast district at Ladysmith, and Anyox.

Almost the entire production, after being smelted, is shipped in the form of "matte" to the United States for refining.

Lead.

Practically all the lead produced in Canada in recent years has come from the British Columbia silver bearing Galena ores.

Most of the active mines are located in East and West Kootenay, Cariboo and Yale. These ores are smelted and refined at the smelter of the Consolidated Mining and Smelting Co. at Trail.

Antimony.

Antimony is a minor constituent of some of the silver-lead ores of British Columbia.

Occurrences have been noted at Lilloet, Slocan and Atlin.

Molybdenite.

There are producing mines near Nelson, in West Kootenay and at Alice Arm and Omenica, in the Skeena District.

Platinum.

The occurrence of platinum has been noted in the gold placer deposits on the Similkameen, Tulameen, Tranquille, Fraser, North Thompson and other creeks and rivers of the Province.

Tungsten.

The occurrence of scheelite has been noted in quartz veins on the Meteor claim, Slocan City mining division, West Kootenay.

Magnesite.

Magnesite occurs in several localities near Atlin. There is one producing mine in this district.

Gypsum.

Gypsum is found at the following places: Salmon river, in the southern part of the Kamloops mining division; Spatsum, on the main line of the C. P. R., 189 miles to the northeast of Vancouver; on the banks of the Thompson River, about 20 miles to the north of Kamloops; at Merritt, in the Nicola Valley, and in the Tulameen district, on Granite Creek.

There was, however, no production reported for the year 1915.

Salt.

The principal salt spring is at the north end of Admiral Island, near Nanaimo. The discovery of an important deposit of rock salt has been reported from Kwinitsa, a station about 45 miles east of Prince Rupert, on the Grand Trunk Pacific Railway.

The B. C. Salt Works, Limited, have operated at the latter place, but did not report any production for the year 1915.

Zinc.

Produced largely as a by-product of galena ores. Two mines, the Lucky Jim and the N. B., are operated for zinc alone. Several mines in the Slocan and Ainsworth mining divisions produce hand-picked zinc ore or concentrates as a by-product. Zinc also occurs near Vancouver on Vancouver Island and near Hazelton. An electrolytic zinc reduction plant is being erected at Trail.

"The future of Canada is beset with new problems and is not entirely free from financial anxieties, but by a young people possessing great national spirit, a territorial Empire and unrivalled natural resources, the future can be looked forward to with hope and confidence."—Sir Vincent Meredith, Bart.

BRITISH COLUMBIA (Continued).

MANUFACTURES.

There were 651 factories in the Province, according to the census of 1911. These were distributed among the following industries:

Aerated and mineral waters, 7; Boats and canoes, 18; Brick, tile and pottery, 16; Boilers and engines, 5; Bread, biscuits and confectionery, 15; Butter and cheese, 8; Artificial ice, 2; Asphalt, 1; Awnings, tents and sails, 2; Boots and shoes, 2; Blacksmithing, 3; Brass castings, 1; Brooms and brushes, 1; Auto repairs and accessories, 1; Car repairs, 14; Coke, 3; Carriages and waggons, 6; Cement blocks and tiles, 7; Clothing (men's custom), 2; Clothing (women's custom), 2; Charcoal, 1; Condensed milk, 1; Coffees and spices, 3; Cooperage, 1; Dyeing and cleaning, 2; Fish (preserved), 50; Electric light and power, 16; Foundry and machine shop products, 25; Flour and grist mill products, 6; Fruit and vegetable canning, 5; Fertilizers, 1; Furniture and upholstered goods, 7; Explosives, 2; Housebuilding, 13; Gas lighting and heating, 4; Glass (stained, cut and ornamental), 3; Interior decorations, 1; Iron and steel products, 2; Hops, pressed, 1; Liquors (malt), 16; Log products, 224; Lumber products, 39; Lime, 2; Leather (tanned, curried and finished), 1; Monuments and tombstones, 1; Mattresses and spring beds, 3; Men's furnishings, 3; Mirrors and plate glass, 2; Metallic roofing, etc., 1; Printing, publishing and bookbinding, 31; Portland cement, 1; Plumbing and tinsmithing, 5; Pulleys, 1; Plumbers' supplies, 1; Patterns, 1; Paper boxes and bags, 1; Roofing, 1; Ships and ship repairs, 5; Smelting, 4;

Slaughtering and meatpacking, 1; Stone (cut), 7; Saws, 1; Soap, 2; Show cases, 1; Sugar (refined), 1; Oils, 2; Rice (cleaning and polishing), 2; Tobacco, 18; Woodworking and turning, 1; Wood piping, 2; Vinegar and pickles, 1; Wooden boxes, 5.

These industries employ 33,312 persons, pay out in salaries and wages \$17,240,670, pay for material \$29,917,753, and have an annual output of \$65,204,235. The aggregate capital employed is \$123,027,521. Deducting the amount paid in salaries and wages, and the cost of material from the annual output, there remains a gross profit of \$18,145,812, equal to 14.75 per cent. on the capital employed.

FISHERIES.

The principal food fishes of the Northern Pacific are: Salmon, Herring, Sturgeon, Bass, Halibut, Oolachans, Smelts, Flatfish, Black Cod, Perch, Trout, Skiff, Sardines, Anchovies, Shad, Oysters, Crabs, Shrimps and Prawns.

The shore line extends nearly 7,000 miles, with a protected area of approximately 30,000 sq. miles.

The production of the B. C. fisheries for 1914-15 was \$11,575,086. The total value of equipment, \$8,829,740, and the number of persons employed 18,328.

The salmon pack in B. C. for 1915 amounted to 1,133,381 cases. The pack in the northern waters now exceeds that of Fraser River, except in every fourth year.

Canneries and modern cold storage plants have been operating since 1914 at Prince Rupert. These establishments now supply practically all the larger towns in the East.

Water Powers of British Columbia

Present development, 231,700 h.p.

Vancouver Island.—Possible development, 500,000 h.p.

Goldstream.—12 miles from Victoria. Power developed here by British Columbia Electric Railway, in connection with the water works system of the City of Victoria.

Jordon River and Brentwood Bay.—Plants of the Vancouver Island Power Company's plant.

Puntledge River.—Canadian Collieries Co. (Dunsmuir), have 2 turbines installed of 4,700 h.p. each.

Kootenay and Kettle Rivers.—Kootenay Light and Power Co., and West Kootenay L. and P. Co., have plants installed supplying Trail, Rossland, Grand Forks, Phoenix, Greenwood, Boundary Falls and other municipalities.

At Bonnington Falls, the city of Nelson has a plant which supplies light and power to the city, and for mining purposes in the surrounding district.

Coquitlam Lake, Buntzen Lake.—Vancouver Power Co. operate this power scheme for the supply of electrical energy to the city of Vancouver and the municipalities of the lower Mainland of B. C.

Stave Falls.—Western Canada Power Co. has a plant here to supply power for industrial purposes in Vancouver and vicinity.

Cousins Inlet.—300 miles north of Vancouver. Plant of Ocean Falls Co., Ltd. Present capacity 11,200 h.p.

Barriere River.—The city of Kamloops situated at the junction of the North and South Thompson rivers has recently completed the installation of a plant on this river, constituting the first portion of the hydro-electric development here, for the purpose of providing cheap light and power for the city and to encourage settlement in the valley of the North Thompson. The power is transmitted to the city of Kamloops, distant about 40 miles.

Similkameen River. The Hedley Gold Mining Co. has developments on this river at Hedley.

Howe Sound.—The Britannia Mining and Smelting Co. operates a plant 28 miles from Vancouver.

Illicilliwaet River.—Flowing into Columbia River near Revelstoke. The city of Revelstoke has a water power development on this river for the use of the city and for the C. P. R. shops.

The C. P. R. have also a development here for the supply of light to their hotel at Glacier.

Murray Creek.—Discharging into the Thompson River at Spence's Bridge. There is a small development here used for lighting purposes at Spence's Bridge.

Fortunes Creek.—Discharging into the Shuswap River. The city of Armstrong River has a municipal plant here.

Allouet Lake.—30 miles east of Vancouver. Undeveloped. 25,000 h.p. available.

Chehalis River.—Farther up the Fraser. Undeveloped. 30,000 to 40,000 available.

Chilliwak Lake.—Undeveloped. 80,000 h.p. available.

Coquihalla River. — Undeveloped, 20,000 h.p. available.

Cheakamus River and Falls.—Undeveloped. 50,000 h.p. available.

Mesliioet or Indian River.—About 20 miles from Vancouver. 40,000 h.p. available. Undeveloped.

Fraser River.—Along this river and its numerous tributaries there are great possibilities for water power development.

Spillimacheen River.—An extensive development is under way at Shuswap Falls by the Couteau Power Co. The total production is expected to be 18,000 h.p. continuous, with a peak capacity of 28,800 h.p. It is expected that the power generated here will be used to a large extent to meet the increasing demand in the Okanagan Valley.

Powell River (Comox-Atlin).—The Power River Co. have a pulp mill plant here, developing about 3,800 h.p.

Anyox.—The Granby Mining, Smelting and Power Co. have developed power here at Falls Creek.

Woodworth Lake.—The city of Prince Rupert develops power here for the use of the city.

Swanson Creek.—130 miles south of Prince Rupert.—1,250 h.p. is developed for use in the sulphite pulp mill, saw mill and the wharves.

Juniper Creek (Skeena Crossing).—Small plant 4½ miles from Skeena Crossing in connection with Roche de Boule Copper Co.

Nass River.—The Kincolith Packing Co. operates a cannery at Mill Bay, and for power purposes for this plant a small water power development has been constructed.

SCIENTIFIC TRAINING NECESSARY.

"The only way Canada can make good as a country is to go to the work of production with knowledge, with high purpose, with scientific training, with method, organization and with mobilization. On that line Canada will be made a country second to none in the wide world. The clarity and selflessness of the earlier part of the war is being blurred by business and full employment; Canadians are drifting away from the spirituality of the earlier part of the war. Guard against that and Canadians will snatch something good from the present ill." — Sir George Foster.

DEVELOPING CANADA'S RESOURCES

The Intimate Relation between the Expansion of the Canadian Northern Railway System, and the Increased Production of Wealth from the Soil, Forests, and Mines of Canada.

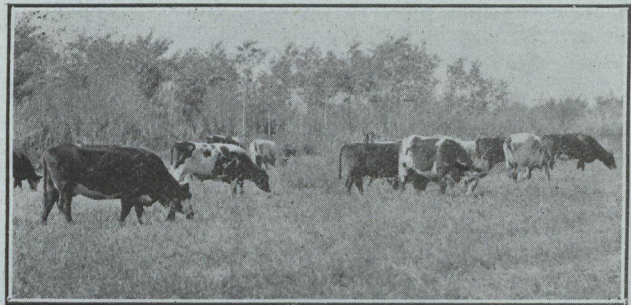
Natural wealth is the only sure foundation upon which national prosperity may be founded.

Economists contend that opportunities are rare or abundant in exact ratio to the size of the country, the number of persons competing for the use of the area, and the richness or poverty of natural supplies afforded by the region. They take it for granted, of course, that the residents have free access to the resources.

Canada has been singularly blessed in regard to the extent and diversity of the natural riches known to exist within the Dominion. But that blessing was modified by the tremendous distances between resources and markets—a serious condition in a region as large as Europe with but a population of a few millions of people.

The railway provided the obvious way to overcome this handicap. The railway, and the railway alone, proved to be the great demand of the settler. And it was shown that while it opened the great virgin areas to the plough and the binder, it made possible also new divisions of territory for prospectors and timber cruisers in search of the ores and timber of commercial quality and quantity. So, throughout the vast unpeopled plains between the Great Lakes and the Rockies, in the closing decade of the last century, the demand for rail facilities to make the development of the country possible, increased from a gentle rum-

distances have been the chief factors in effecting the change. It may be said of them that their building made possible the peopling of the Prairie Provinces, and their rise to importance as producers of foodstuffs, and as markets for the goods produced in the factories of the east. They alone were the cause of the birth of myriad cities.

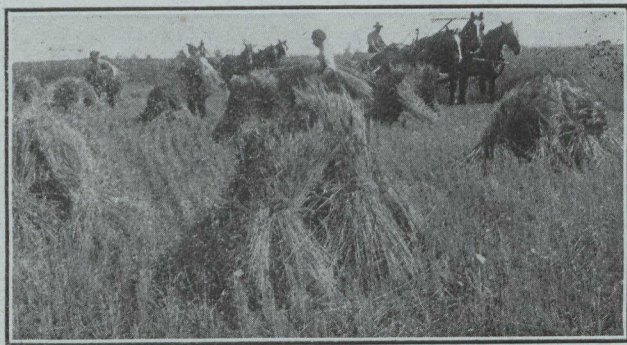


In the Mixed-Farming Sections of the West.

towns and villages between Winnipeg and the great natural barrier the Rockies. The unaccessible resources became accessible—the soil, the mines, the forests,—were made to produce for the good of the nation, and to-day Canada has come to be regarded as the granary of the Empire, and the chief source of supply for the wheatless millions in the Old Land. They have brought about the greatest measure of opportunity and have been the most important factor in promoting the welfare of Canada as a whole.

There is an intimate relationship between the diversion of British gold to Canada, the expansion of the Canadian Northern, and the development of Canada in general, as may be seen from the following paragraph quoted from the last Annual Report issued recently by the Company:—

“Inasmuch as many of the security-holders invested their funds in the Company's undertakings, believing that the heart of the Empire would some day need to draw heavily upon the wheatlands of the Canadian West, it is with great pride that the Directors present these figures, illustrating the extent to which the Prairies have been opened up, made productive and the produce marketable by the Company's railways. There were probably few who thought that the crucial necessity would come so soon, but, having come, it must be considered fortunate that the Canadian North-



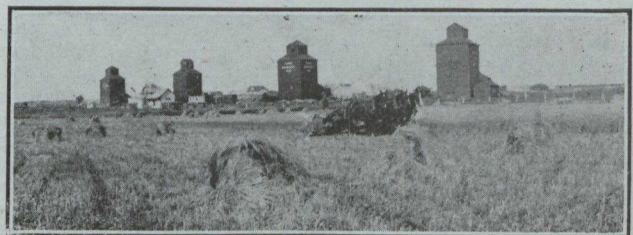
Harvesting in Saskatchewan.

bling to a clamor sufficiently effective to arouse Governments to action.

It was because of this popular demand the Canadian Northern Railway System came into existence in 1896. British gold backed up the faith of the people, and Canadian Northern Railway lines, within a few years had increased in mileage to a point where it was clearly shown that the people were justified in their requests for rail facilities. Year after year, British gold continued steadfast, and the southern and central portions of Manitoba, Saskatchewan and Alberta became gridironed with steel rails.

In 1900 the value of the output of the mines for all Canada was \$64,420,877; that of the forest products \$51,082,689; of the fisheries \$25,737,154; of the field crops, \$194,953,420, and the trade \$381,517,236. With the passing of fifteen years, what a change! The value of the output of the mines in 1915 was \$137,109,171; of the forest products, \$172,880,000; of the fisheries, \$31,264,631, and of the field crops \$797,669,500, and the trade of the country was \$1,120,253,771.

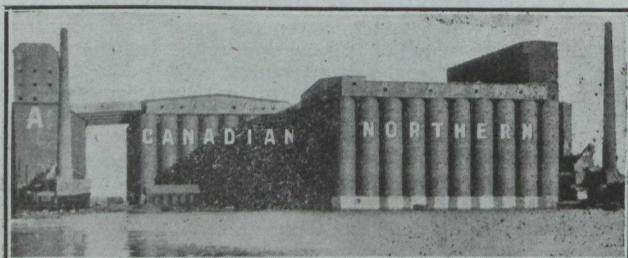
The railways, by eliminating almost entirely the drawbacks involved in the marketing of products over great



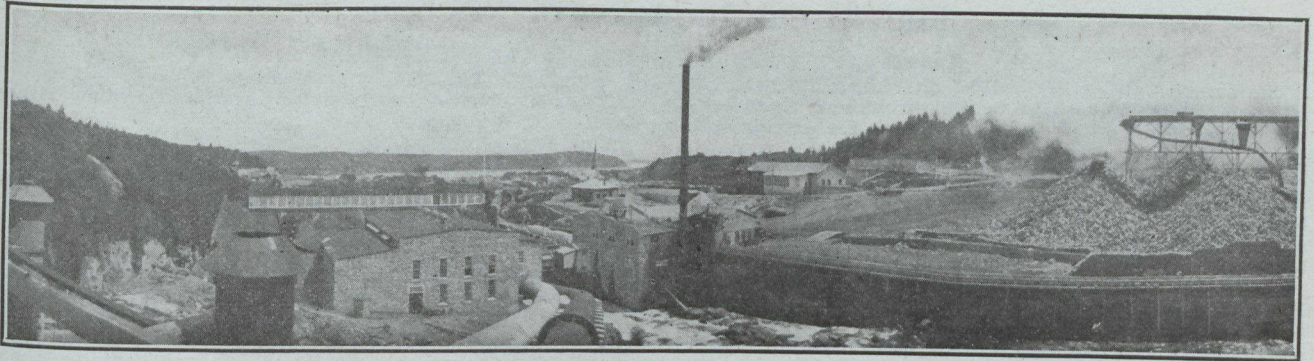
The Genesis of a Prairie Town.

ern System and the country tributary to it, were sufficiently developed to take an important part in supplying the Empire's food requirements.”

Of wheat, and flour considered in terms of wheat, the Canadian Northern handled of the 1915 crop 90,618,775 bushels. Millers say that 4½ bushels of wheat are required to manufacture one barrel of flour, and bakers contend that on the average 175 loaves of bread of 24 ounces each, can be produced from one barrel of flour. This would mean that of the wheat handled from the territory opened up by the Canadian Northern Railway, and cultivated for the first time within the past 15 to 20 years, there was produced in one season 3,524,063,375 loaves, enough to give each of the 45 millions in Great Britain and Ireland, 75 loaves. Under the limits of four pounds of bread per head of population per week, as laid down by Lord Davenport, Britain's Food Dictator, this would be a supply for twenty-eight weeks for all the people in Great Britain and Ireland.



C. N. R. Elevator Plant at Port Arthur; Capacity 10,000,000 Bushels.



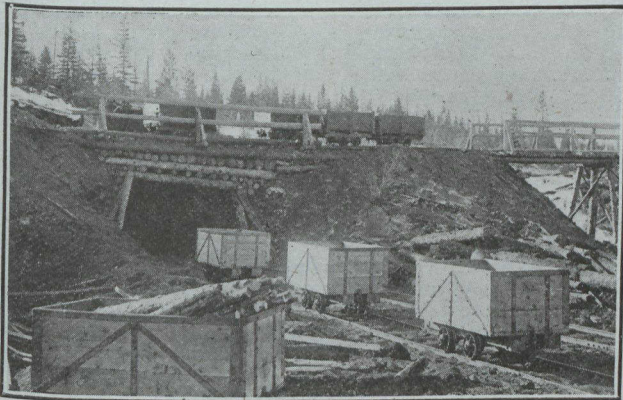
Pulp Industry on the Canadian Northern in Northern Quebec.

This point has not been lost sight of by newspapers in Britain, and in commenting upon the Last Annual Report of the Canadian Northern Railway System, the Manchester (England) "Guardian," observed:—

"The report . . . shows incidentally the value of the services it (C.N.R.) has rendered to the Allies by the transport of food. This was gathered mainly from country opened up by the railway and tilled for the first time within the last 15 years.

construction of the lines of the Canadian Northern Railway in the west.

When the war is over Canada will become once more a land of Hope and Promise to the discontented of the world's peoples. It seems highly probable that the inrush of immigrants will be resumed, because there are more reasons now than ever before for that to be so. The Canadian Northern serves a territory that is not excelled in all Canada, and there is much good land yet to know the plough, comparatively close to its rails. A wonderful mixed-farming country is traversed by its northern lines, and many a sturdy son of the Old Country across the Atlantic is finding there most of the attractions of the old home and greater—vastly greater—independence. In the areas served by its lines between the Atlantic ports and the Pacific, there is such a variety of opportunity, that the settler would be fastidious indeed who could not be completely satisfied.

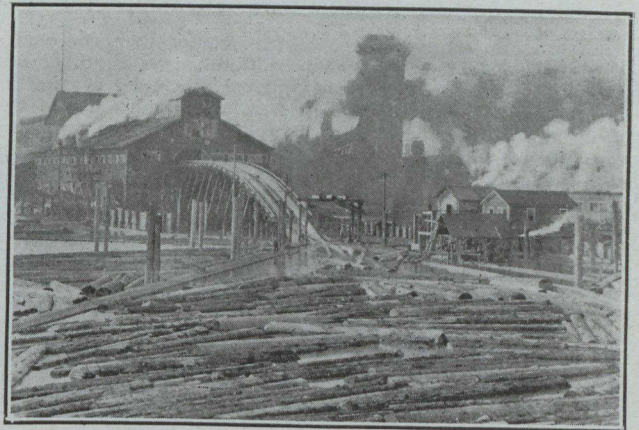


A "Brazean" Coal Mine in Alberta.

In spite of the misfortune of having to be completed under war conditions, the new railway system, 9,000 miles, is rapidly coming into its own."

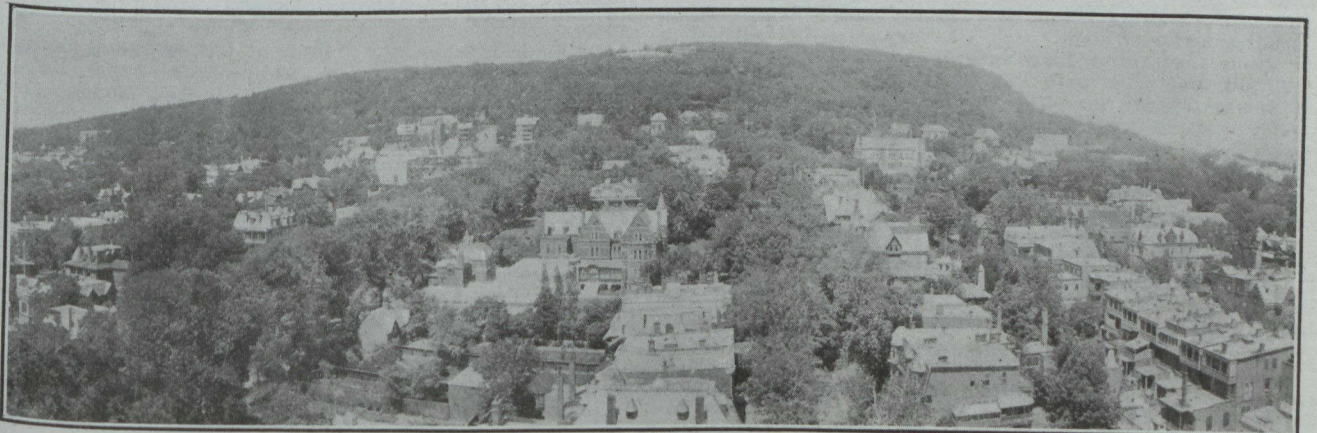
Therein lies the Imperial significance: the "foodstuffs for the Allies"! British gold had been diverted to the enterprise from its inception, to the outbreak of war, against the possibility of just such an emergency. And the country opened up by that gold did not fail in the time of test.

How much greater the service to Canada! Each of the settlers who poured into the newly-opened lands on the heels of the railway builders—in many cases earning their way on construction work—became first a producer, and then a consumer of the goods, turned out in the factories of Eastern Canada. That market grew with every mile of track laid down by the Canadian Northern, and it would be an impossible task to-day to think of estimating the value of the goods, the sale of which was made possible by the



Lumber Plant on C. N. R. in British Columbia.

And, as was the case in the development during the past twenty years, the growth in settlement to 1940 will be traceable to railway development. It will be, over again, the unaccessible made accessible, and while the Canadian Northern does not, of course, claim all of the credit for the expansion of Canada since 1896, it contends it is entitled to a share—a very considerable share of that credit.



Montreal, showing Mount Royal, Through which the Canadian Northern Entrance has been Tunneled to the Heart of the Business District.

The Great Industry of "Scotia"

The names Cantley & "Scotia" have since the war commenced become household words throughout Canada, for was it not Thomas Cantley, who through his experimenting in the great steel works down in Nova Scotia proved to the Imperial and Federal authorities that basic steel, as manufactured in Canada, was equal to the best acid steel for the making of shells thus starting just in time an era of prosperity for Canada never before equalled and this in spite of the enormous cost of the war. But previous to the war Col. Cantley had made a strong reputation as an iron and coal master and as organizer and builder up of the huge business of the Nova Scotia Steel & Coal Company—a business that was started with a capital of \$4,000 and ten employees, in a forge shop and which to-day, after a period of forty hard working years employs 10,000 men and has a capital of \$20,000,000.

The operations of "Scotia" the popular name of this great concern cover five distinct industries:

The iron mines of Wabana, Newfoundland.

The coal mines at Sydney Mines, N.S.
The blast furnaces and smelting works at Sydney Mines, N.S.

The steel works at New Glasgow, N.S.

The car works at New Glasgow, N.S.

Or, in other words, the products of "Scotia" represent the best mines, the huge furnaces and the big workshops of Canada's great coal and iron areas. The iron ore deposits of the company are situated on Bell Island, off Newfoundland, and as an indication of their extent and value one might quote Mr. E. C. Eckel, an eminent mining engineer of the United States, who in a report on "Scotia" ore holdings on the Bell Island says that in one ore bed alone the iron ore runs 30 feet thick, and contains about 90,000,000 tons to the square mile. The area exceeds 80 square miles. The same authority recently published an estimated comparison of the holdings of the principle companies on the American continent which reads as follows:

Company.	Ore District.	Tonnage owned.	Present annual draft.	Duration of supply years.
U. S. Steel Corp.....	Lake District	900,000,000	21,000,000	43
*U. S. Steel Corp.....	Lake and Alabama.....	1,300,000,000	23,000,000	55
Pennsylvania Steel Co.....	Cuba alone	600,000,000	954,092	642
Rep. Iron & Steel Co.....	Alabama	89,000,000	700,000	127
Rep. Iron & Steel Co.....	Lake and Alabama.....	128,000,000	2,000,000	64
Beth. Steel Co.....	Cuba alone	250,000,000	318,814	783
Sloss-Sheffield Co.....	Alabama	78,000,000	800,000	95
Woodward Iron Co.....	Alabama, red ores.....	235,000,000	500,000	450
Dom. Steel Corp.....	Newfoundland	600,000,000	700,000	425
N. S. Steel and Coal.....	Newfoundland	2,000,000,000	600,000	3,300

*The U. S. Corporation combined Lake and Alabama tonnage is 1,300,000,000; Scotia deposit by these figures exceeds that of the U. S. Steel Corporation by 50 per cent.

Referring to the same iron mines Dr. Loremer, the chairman of the Steel Company of Scotland, says that "one of the largest and most valuable deposits of iron ore in the world is now being worked in Newfoundland." From the Christmas of 1895, when the first shipment of ore from the Alabama was made, to the end of last year, 6,574,167 tons have been shipped. With the very best equipment mining operations have been developed sufficiently to assure an annual output of over a million tons. About half of this high output is sold abroad at good prices, the principal reasons being that "Scotia" ore is considered one of the best on the market and because of the geographical situation of the deposits—partway between Europe and North America—splendid shipping facilities and cheap transportation. The balance of the output is shipped to the company's furnace at Sydney Mines, N.S.

Coal Areas and Steel Works.

Scotia's coal areas are estimated at over 2,500,000,000 tons working at present through five mines with an annual output of over one million tons. This area is toward Sydney Mines, where the company has its principal steel plant with a blast furnace and open hearth steel annual capacity of 150,000 tons. The plant is equipped with the latest designed engineering shops, coke ovens, etc. From the company's collieries and steel works to North Sydney, where extensive docks have been constructed for coal, steel and ore shipping, is a distance of three miles, between which the railway system is about as perfect and complete as brains can make it.

While the iron and steel are produced at Sydney Mines, the manufacturing and finishing mills and machine shops are situated at New Glasgow, N.S., some little distance away. At the New Glasgow steel works, where over 4,000 men are employed, practically every kind of steel produced is made. In car axles alone these works have the largest output of any other shop in the British Empire and over 50 tons of railway spikes are made each working day. The steel products of Scotia include polished shafting, track bolts and nuts, structural steel, rivets, etc.

The fifth industry organized and worked by Scotia is the Eastern Car Company, Limited, all the shares of which are in the hands of the "Scotia" shareholders. This plant, which comprises 63 acres, is so situated on East River as to be near the works of the parent company and where heavy timber can be delivered direct from the largest steamers. The Eastern Car Company controls over 100 miles of timber land, which together with Scotia's steel and coal out-

put, enables the Company to compete on the most favorable terms with any other car plant in Canada or the United States. Although operations only commenced in September, 1913, up to the end of 1915 enough freight cars had been built for Russia to fill eleven vessels varying from 6,000 to 11,000 tons. The capacity of the plant is 30 cars per day.

Shipbuilding.

"Scotia" is now building its first steel vessel, which when completed will be 220 feet long and will be entered into the company's freight service. But this is only the beginning of what is confidently expected to be a big shipbuilding industry, but much depends on the Federal Government's support, for like all new industries, even when inauspicious, there is great deal of risk until the industry is established sufficiently to warrant men to put up their capital. This risk should not be borne alone by the pioneers—the country as a whole should bear part of it.

Conclusion.

This brief sketch of an industry (or rather six industries, including the shipbuilding plant) which gives employment as already mentioned to over 10,000 hands, meaning that upwards of 50,000 men, women and children are directly dependent on its success as well as many shareholders in all parts of the world and four municipalities in Canada and one in Newfoundland indirectly, would not be complete without a word about the brains and energy that have made possible what might be termed the great pioneer steel industry of Canada. At the head of the galaxy of Canadian foresight and pushfulness is Col. Thomas Cantley, who for 30 years has worked for and half that time managed "Scotia." With absolute confidence in his work, himself and his company, he has inspired not only confidence and faithfulness in his lieutenants, but he has got that best in them to come forward in the interests of "Scotia." The spirit of achievement would seem to have been impregnated into the very marrow of the men; and the result—success. The success of gradual growth in solid foundation. Assisting Col. Cantley is R. E. Chambers, the discoverer and manager of the Wabana ore mines; Thomas J. Brown, manager of Sydney mines; W. F. Ross, vice-president; Archibald McColl, assistant to president; John Irving, sales manager, and Major C. L. Cantley, son of the president, who after serving at the front was recalled by the Militia Department to take charge of the manufacture of munitions.

OFFICE SPECIALTY

STEEL FILING EQUIPMENT
PROTECTS VALUABLE RECORDS

In Registry Offices, Municipal Offices, Banks and large Commercial Offices all over Canada, "Office Specialty" Steel Filing Equipment is used to provide compact, durable, fire-resisting protection to the business records which are vital to the progress of business.

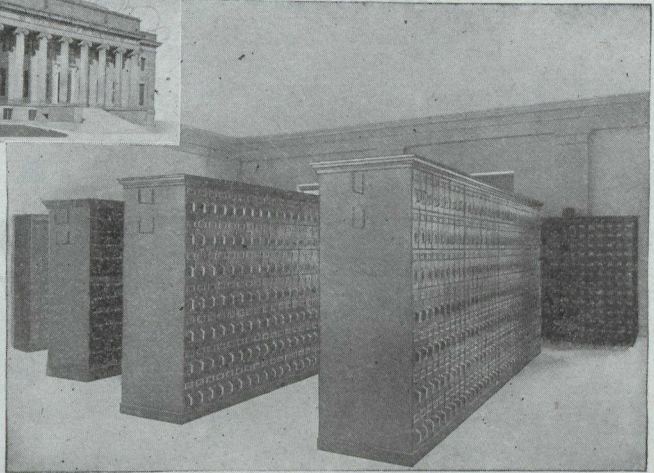
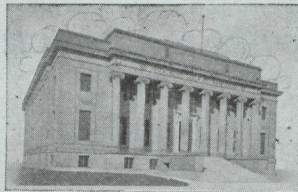
Whether importance is placed on SAFETY for the Records, on CONVENIENCE, or on the EFFICIENCY of the System of Record Keeping, "Office Specialty" furnish the utmost in these Filing and Record Keeping advantages.

Sectional Files for all classes of Records are made and stocked by "Office Specialty". These are economical files for use in either the office or the vault. If special equipment built to the exact size of the vault space at hand is desired, special plans will be submitted to meet those conditions exactly.

Some Office Specialty Filing Conveniences regularly made and supplied include — Correspondence, Document and Cheque Files; Deposit Boxes; Storage Cupboards; Roller Book Shelves; Steel Shelves; Plan Drawers; Sliding Doors; Roller Curtains; Running Ladders.

All "Office Specialty" products are *Made in Canada*. Skilled workmen, backed by the Office Specialty Manufacturing Organization of 30 years' development ensures Filing Equipment of the highest grade.

Our Catalogue No. 2000 illustrates and describes the Office Specialty line of Steel Filing Equipment. Catalogue No. 1825 gives particulars on the Stock Line of Steel and Wood Filing Equipment. Ask for a copy of these catalogs. Use the Coupon.



This is part of a large installation of Record Files in the Land Titles Registry Office, Toronto. Space is economized to the greatest extent throughout and an efficient arrangement of Steel Document and Card Index Files arranged back to back is noticeable.



This interior view showing part of the "Office Specialty" Steel installation in Toronto Registry Office, shows a wide variety of equipment in use. Stacks with roller shelves for books (in front of which are Sliding Curtains); Reference Tables, Trucks, and Document Files.

THE OFFICE SPECIALTY MFG. CO. LIMITED

Largest Makers of Filing Devices in the British Empire

Home Office and Factories: **NEWMARKET, CANADA**

8 Filing Equipment Stores:

- | | | | |
|----------|----------|----------|-----------|
| TORONTO | MONTREAL | OTTAWA | HALIFAX |
| WINNIPEG | REGINA | EDMONTON | VANCOUVER |

OFFICE SPECIALTY MFG. CO.

NEWMARKET, CAN. (or nearest branch)

Please send, without obligation, Catalog No. 2000 on Office Specialty Steel Equipment ; Filing Equipment, Catalog No. 1825 ; Information on Record Safe ; Vault Trucks .

Name.....

Address.....

Thornton Davidson & Co.

Members Montreal Stock Exchange

Stock and Bond Brokers

420-422 Transportation Building

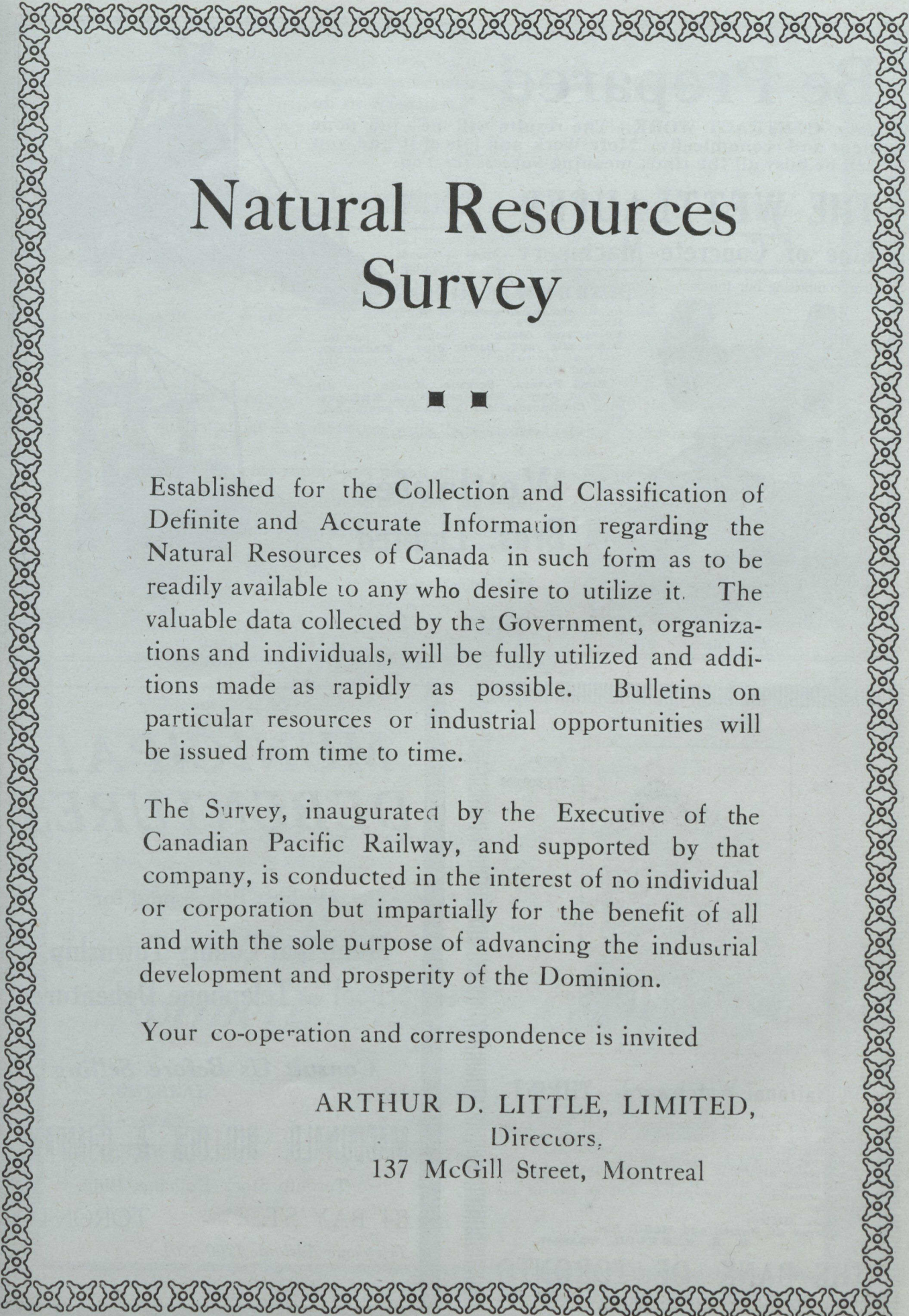
MONTREAL

CORRESPONDENCE SOLICITED

Private Wire Connections---New York, Toronto, etc.

Cable Address: "Thorndavid"

Telephone Main 7490---7491



Natural Resources Survey



Established for the Collection and Classification of Definite and Accurate Information regarding the Natural Resources of Canada in such form as to be readily available to any who desire to utilize it. The valuable data collected by the Government, organizations and individuals, will be fully utilized and additions made as rapidly as possible. Bulletins on particular resources or industrial opportunities will be issued from time to time.

The Survey, inaugurated by the Executive of the Canadian Pacific Railway, and supported by that company, is conducted in the interest of no individual or corporation but impartially for the benefit of all and with the sole purpose of advancing the industrial development and prosperity of the Dominion.

Your co-operation and correspondence is invited

ARTHUR D. LITTLE, LIMITED,
Directors,
137 McGill Street, Montreal

Be Prepared

and equipped with the proper Machinery to do your CONTRACT WORK. The results will be—Job done right and economically; More Work and lots of it and you will be busy all the time, meaning *Success for You.*

THE WETTLAUFER Line of Concrete Machinery

is just the class of Machinery to be prepared with, and is Made in Canada by a Canadian

firm, comprising our famous

HEART-SHAPE MIXERS

in all sizes and styles of the latest type. **Rock Crushers** to crush your stone, etc. **Pulverizing Rolls** to reduce to powder. **Drain Tile and Sewer Pipe Machinery**, making this material in all sizes (and the demand for it is enormous).

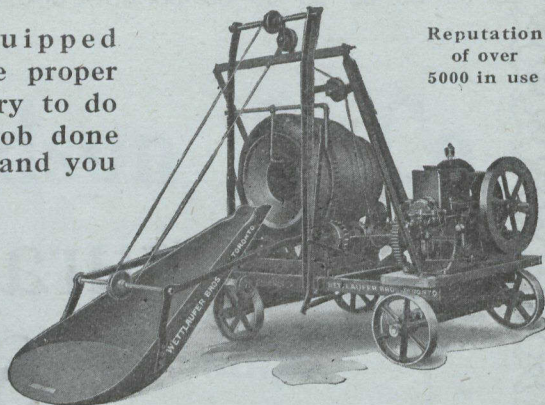
Road Pavers, Screens, Hoists (for all class of work); **Brick and Block Machines, etc.; Contractors' and Builders' equipment, etc.**

Write for Catalog H.

Wettlaufer Bros., Limited

178 Spadina Avenue,
Toronto - Ont.

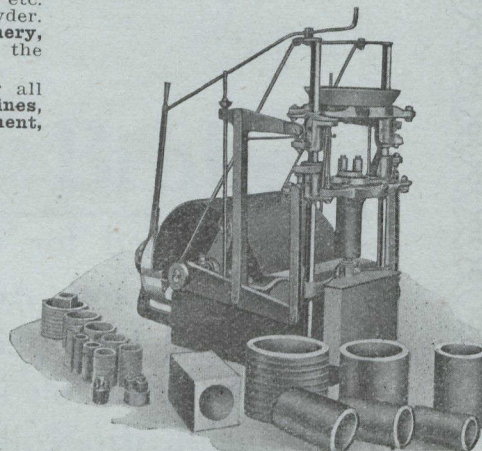
Reputation of over 5000 in use



Heart Shape Mixer (latest model).



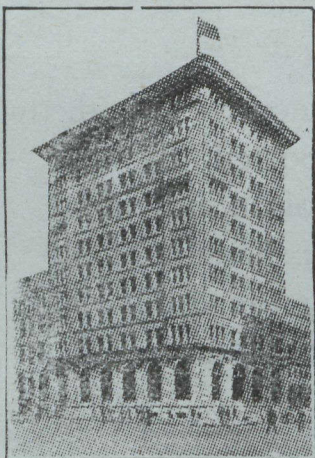
Mitchell Improved Crusher.



No. 2 Drain Tile Machine.

ESTABLISHED 1855

Capital,
\$5,000,000



Assets,
\$73,000,000

A National Watchword--- THRIFT

Be economical. Be Thrifty. Be saving. And encourage all three by depositing part of your earnings in the Savings Department at any Branch of the Bank of Toronto.

Interest is paid on balances. Courteous attention will be given to your Banking business of whatever nature. We cordially invite you to call at any of our branches.

Main Office:
Corner St. James and McGill Sts.
H. B. HENWOOD, Manager.

THE BANK OF TORONTO
MAIN OFFICE--Corner St. James & McGill Sts.

MUNICIPAL DEBENTURES

Highest Prices paid for
Municipal County Township,
School and Telephone Debentures

Consult Us Before Selling

MACDONALD, BULLOCK & COMPANY

Toronto Stock Exchange Bldg.
84 BAY ST. - TORONTO

Telephone Adelaide 1700-1701

Completely Equipped to Handle Any Street Lighting Installation

No other Canadian Company can match the service we are prepared to offer municipalities in connection with their Street Lighting problems.

For we not only supply and install all necessary equipment, including ducts, cable, lamp standards, lamps, etc., but are ready to offer, without charge or obligation, expert engineering advice on any street lighting problem which may confront you.

And our recommendations as to what is best suited to your individual requirements would be backed by knowledge gained in installing some of the most important street lighting systems in this Country.

Our willingness to co-operate does not depend on the size of the job or the amount involved, but if intrusted with the work, whether large or small, the same quality of workmanship, materials and service is guaranteed in every instance.

That we are so completely equipped to cope with any street lighting problem means that all responsibility is concentrated on one Company, and you also benefit by the attractive quotations we are able to make.

Northern Electric Company LIMITED

MONTREAL

HALIFAX

OTTAWA

TORONTO

LONDON

WINNIPEG

REGINA

CALGARY

VANCOUVER

GEO. H. SMITHERS

J. J. M. PANGMAN

GEO. W. S. HENDERSON

BURNETT & CO.

Members Montreal Stock Exchange

Private Wire Connection with New York and Toronto

Telephone Main 1747-8

12 St. Sacrament St.

ESTABLISHED 1868

Cable Address, "Montgibb."

**McGibbon, Casgrain, Mitchell & Casgrain
Casgrain, Mitchell, Holt, McDougall, Creelman & Stairs**Victor E. Mitchell, K.C.
Chas. M. Holt, K.C. John J. Creelman
A. Chase Casgrain, K.C. Gilbert S. Stairs
Errol M. McDougall Pierre F. Casgrain
801 ROYAL TRUST BUILDING, MONTREAL

Cable Address, "Jonhall."

Brown, Montgomery & McMichael

ADVOCATES, BARRISTERS, &c.

Albert J. Brown, K.C. George H. Montgomery, K.C.
Robert C. McMichael, K.C. Walter R. L. Shanks
Rennie O. McMurtry Daniel P. Gillmor
E. Stuart McDougall Warwick F. Chipman
DOMINION EXPRESS BUILDING, MONTREALJames Ewing, M. Can. Soc. C.E. E. S. M. Lovelace; B.A. Sc., M. Can. Soc. C.E.
Altheod Tremblay, A.M. Can. Soc. C.E. Mem. Board of Directors Q.L.S.**EWING, LOVELACE & TREMBLAY**

Civil Engineers and Land Surveyors

Surveys, Plans, Maps, Estimates and Reports, Railway Location,
Bd. of Ry. Commission Plans, Power and Industrial Sites, Municipal
Work, Subdivisions. *We Specialize in Town Planning.*
BIRKS' BUILDING, 14 PHILLIPS SQUARE, MONTREAL
Tel. Upt. 1100**J. T. DONALD & CO.**

Chemical Engineers, Consulting Chemists

REPORTS, ANALYSES, ASSAYS, TESTS, INSPECTION

43 Scott St.,

318 Laguchetiere Street West,
Corner Beaver Hall

TORONTO

MONTREAL

Only 12 Minutes
By Electric Engines
Through Mount Royal Tunnel to
Model City Annex
MONTREAL

There will be Regular Service in August, according to
C. N. R.'s own reports.

On the first Trial Trip, April 22, 1917, the time taken
was 12 minutes—which included three stops to
let passengers inspect.

Imagine what this means to men wanting quick ser-
vice to get out of the City, and away from the
noise and busy business life all day long, to Sun-
light, Fresh Air, and Home Life.

That is one of the reasons why we feel confident that
in our offering this property

YOU NOW HAVE THE OPPOR-
TUNITY OF MAKING ONE OF
THE FINEST INVESTMENTS
POSSIBLE TO-DAY.

**J. WALTER GAGE
REALTY CO.**

Suite 205, Drummond Building

MONTREAL - - P.Q.

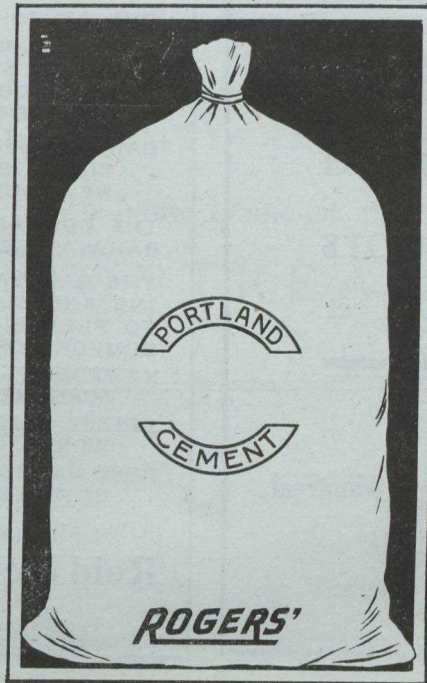
Dealers in:--
**Government,
Municipal &
Corporation
Bonds**

*Full particulars gladly
furnished on request*

Crédit-Canada LimitéePres.—Hon. H. B. RAINVILLE
Dir. Mgr.—E. A. OUIMET
Sec.-Treas.—F. SAINT-PIERRE

179 St. James St. - MONTREAL

POINTS OF SUPERIORITY



1. Dependable Materials
2. Uniformity of Strength
3. Absolute Durability
4. Rigorous Inspection
5. Unlimited Supply
6. Unequalled Shipping Facilities
7. High Standard of Quality

ROGERS' PORTLAND CEMENT

"THE CANADIAN STANDARD"

Alfred Rogers Limited, Toronto

The Canadian
SIEGWART BEAM
Company, Limited

Hollow Reinforced
Concrete Floors
For Spans up to 20 Feet

Head Office:

103 St. Francois Xavier Street, Montreal

Works : Three Rivers, P.Q.

Write for the French or the English
Edition of our Catalogue

**Reid Newfoundland
Company**

Proprietors and Operators of :

THE DRY DOCK, ST. JOHN'S, NFLD.
THE ST. JOHN'S ELECTRIC STREET RAILWAY.
THE ST. JOHN'S ELECTRIC LIGHT & POWER.
A COASTAL SERVICE OF TWELVE CLYDE BUILT
SHIPS, SERVING THE COAST BAYS AND
LABRADOR AND CONNECTING WITH RAIL-
WAY SERVICE.

DAILY SERVICE (EXCEPT SUNDAY) ON FIRST
CLASS BOATS BETWEEN CANADA AND
NEWFOUNDLAND.

THE COMPANY ALSO OPERATES THE WHOLE
RAILWAY SERVICE OF NEWFOUNDLAND.

THE RAILWAY IS WELL EQUIPPED WITH DIN-
ING AND SLEEPING CARS, AND EVERYTHING
TO PLEASE THE TASTE AND ADD TO THE
COMFORT OF THE TOURIST IS PROVIDED.

NEWFOUNDLAND IS AN UNRIVALLED SPOT FOR
SCENERY.

FINEST CARIBOO HUNTING GROUNDS IN THE
WORLD.

BEST SALMON AND TROUT STREAMS THAT
HAVE YET BEEN DISCOVERED.

For information, apply to

Reid Newfoundland Company

St. John's, Newfoundland

WM. C. BRENT.

HAROLD BRENT.

**BRENT NOXON
& CO.**

DOMINION BANK BUILDING,
TORONTO

DEALERS IN

MUNICIPAL DEBENTURES

Highest Market Prices Paid

Correspondence Solicited

FOR CONSERVING
AND
INCREASING YOUR FUNDS

BUY

Canadian Government

AND

Municipal Debentures

Your *Principal* is *Safe*

AND

Your *Interest* is *Sure*

BONDS BOUGHT & SOLD

For Particulars Communicate With

C. H. BURGESS & Co.

Traders Bank Building

TORONTO

CANADA

INTERNATIONAL MANUFACTURING
COMPANY LIMITED

3675 Notre Dame St. East
MONTREAL

PRACTICAL PREPAREDNESS

Send for your Copy
of the

“F. M. BOOK”

It contains a complete
line of mechanical equip-
ment and supplies.

Consists of being ready with actual equipment on the ground whether it is for the building of Good Roads, the Construction or Equipment of a Factory, or the development of Agriculture.

Fairbanks-Morse Machinery and Supplies are the kind that cost the least for the amount of work they perform.

Talk over your proposition with us. It will cost you nothing and we may give you some valuable suggestions that will save you dollars.

The Canadian Fairbanks-Morse Co., Limited

84-98 St. Antoine St. - MONTREAL, Que.
St. John, Toronto, Saskatoon,
Quebec, Hamilton, Calgary,
Ottawa, Windsor, Vancouver,
Montreal, Winnipeg, Victoria.





Strength & Durability
WHEN
Sadler AND Haworth
feeds the power to
your plant

Stock at Montreal, Toronto, St. John, N.B., Winnipeg, Vancouver.

AFTER THE WAR

THE INCREASING DEVELOPMENT
OF CANADIAN MANUFACTURES
WILL CREATE A LARGE DEMAND

FOR

ELECTRIC POWER

Phillips Cables

For Electric Lighting, Power, Telephones &c.
will give the most reliable service

Eugene F. Phillips Electrical Works

LIMITED

MONTREAL

Toronto
Winnipeg

CANADA

Regina
Vancouver



Industrial Strategy

—is all-important for **CANADIAN MANUFACTURERS** whose eyes are open to the **NEW CONDITIONS** under which commodities will be manufactured and **NEW TRADE FIELDS** secured, when the message is flashed through the world:

“PEACE IS DECLARED”

To Win the Industrial Victory

—to which our resources, geographical position and industrialism will entitle us,—we must first **PLAN OUR CAMPAIGN**, having regard to the **THREE GREAT FACTORS** which alone will spell, success:—**Abundant Labor, Facilities for Export and Cheap Power.**

This means that the permanently successful industry of the future must be so located as to control these three essential factors, to be able to meet competition, domestic as well as foreign.

THE ANSWER IS:

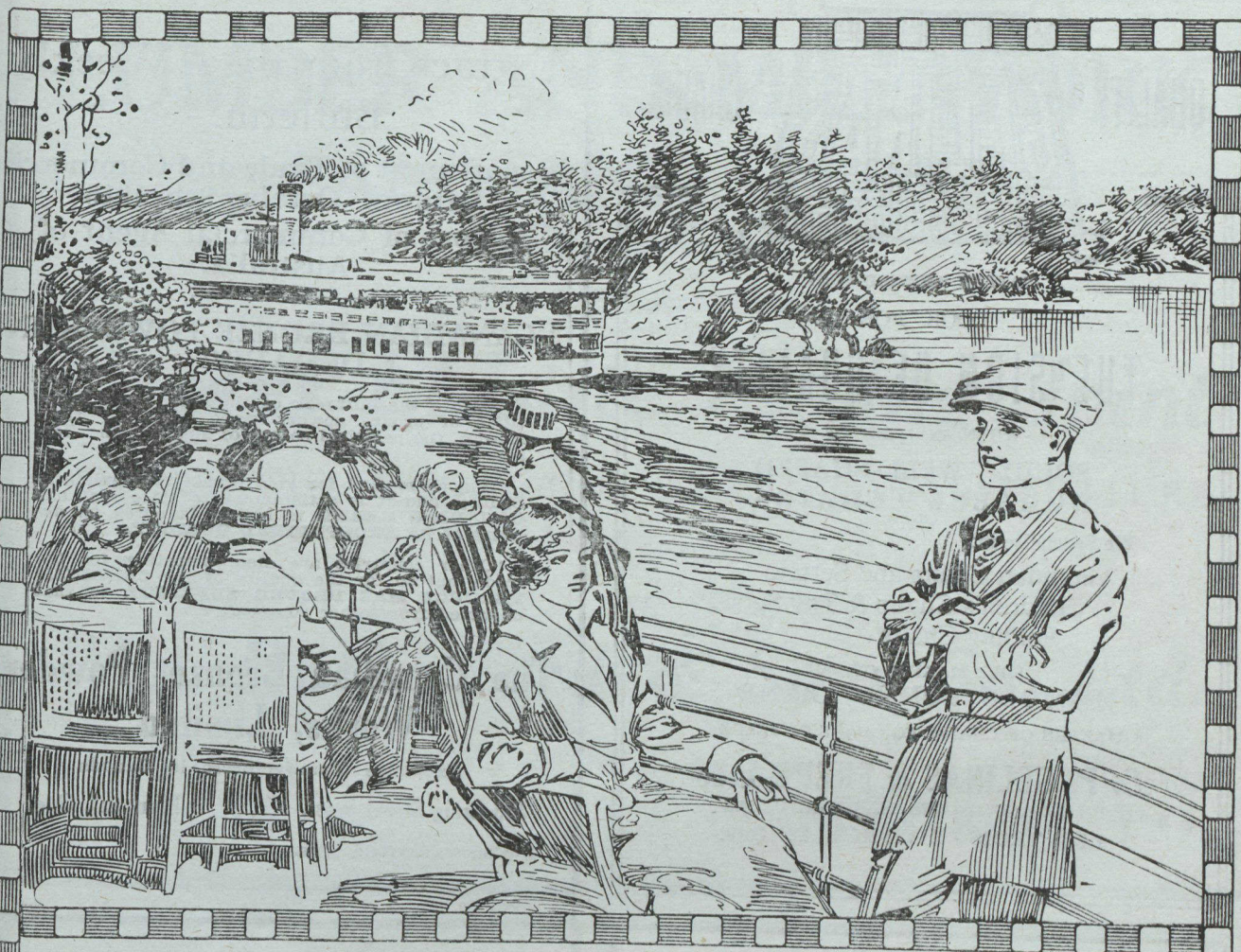
THREE RIVERS, P. Que., Canada

—An Ocean Port on the St. Lawrence with the finest natural harbor in America;—**Abundant and Cheap Labor** (male and female);—**Cheapest Electric Power** in Canada;—the home of 30 **Manufactures**, including largest kraft paper Co. in the world, the largest cotton mill under one roof in Canada, the largest Iron Foundry in Canada—Manufactures also of Steel, Machinery, Shoes, Gloves, Furniture, Coffins, Biscuits, Ladies' Wear, etc.—The First and Only City in Canada to Erect a **MUNICIPAL FACTORY BUILDING** to Provide Ready Accommodation for New Industries at a Minimum Cost.

*Let us tell you WHY Five Industries
Located in Three Rivers during 1916*

Your Name on a Post Card will bring you much valuable information about Canada, and its Fastest-Growing City. Send it to-day to—

W. JOS. SHEA, Industrial Commissioner,
THREE RIVERS, P. Que.



Take Your Summer's Vacation This Year in Canada

Amid the scenic wonders of the 1000 Islands and the Saguenay. You will enjoy every mile of this thousand mile trip.

NIAGARA TO THE SEA

You can start anywhere, at Montreal, Toronto, Niagara or Quebec. Make it a two week's trip if you can, or take any part of it. Between Montreal and Toronto you will encounter the ever-changing, ever-glorious scenery of the 1000 Islands—and the exciting experience of shooting the river rapids, which, once-upon-a-time, the Indians used to shoot in their birch bark canoes: Quaint old Quebec with its old-world charm, is a constant delight to the traveller.

The boats touch at Murray Bay and Tadousac, where the traveller will find up-to-date Canada Steamship Lines' Hotels.

Finally, on to the River Saguenay—deep as the height of its tallest promontories. Capes Trinity and Eternity—higher than Gibraltar.

The trip of a thousand miles—
The trip of a thousand thrills.

SEND FOR BOOKLET

Send two cents for illustrated booklet, map and guide.

CANADA STEAMSHIP LINES LIMITED

99 R. & O. BUILDING, MONTREAL



(PATENT APPLIED FOR)

LOOK FOR

THE SIGN OF QUALITY

WHEN IN NEED OF

**SOLID WELL-SHAPED
DURABLE CHAIRS**

We Specialize in:

Verandah Chairs and Settees
Children's Chairs & Toy Sets
Folding ChairsSOLE MAKERS OF THE
FAMOUS 'JUMBO' CHAIR

MAKERS OF CHAIRS FOR PAST 50 YEARS

C. P. GELINAS & FRERE, LtéeCHAIR AND SHOVEL MANUFACTURERS
LES TROIS - RIVIERES, P. Que.Extract from the "Weekly
Bulletin."Department of Trade and Commerce
Ottawa. October 9th, 1916Report of Commercial Agent of
Australia.**"CANADIAN BRONZE POWDER IN
DEMAND"**

"Before the outbreak of the war, large quantities of bronze powder were imported from Europe, the principal source of supply being Germany.

"A good market for gold bronze now exists in Sydney, and it is satisfactory to state that one **CANADIAN BRAND** is highly favoured on account of its **EXCEPTIONAL QUALITY**."Other countries are also competing for the trade, but so far the quality of the **CANADIAN PRODUCT HAS PROVED SUPERIOR** to that imported from other sources."**The Canadian Bronze Powder
Works, Limited**

Exclusive Manufacturers in Canada

335 Craig Street West,

Montreal, Que.

Works: Valleyfield, Que.

Burlaps for Walls

DOUBLE SIZED AND OIL COATED

Made in Widths of 30, 36, 45, 54, 60, 72 and 90
inches. All Standard ShadesLENGTH OF ROLLS, ALL LINES, 30 and
60 YARDS.**THE MODERN WALL COVERING****Economical Sanitary Attractive**

Used extensively in Dwelling Houses, Hotels, Halls, Churches and Public Buildings, and, in fact, in all places where a combination of attractiveness and comfort, combined with low cost, is desired.

Our Oil Coated Burlaps already have the base colors thereon, and it is only necessary to give them a light coat of oil paint of the desired tint after being applied to the walls.

Handled by Leading Jobbers of Wall Papers,
Paints, Etc.

SEND FOR SAMPLES AND PRICES.

Manufactured by

The Dominion Oil Cloth Co.

LIMITED.

MONTREAL**The
Constructing & Paving
Company of Ontario,
Limited**

Organized in 1890—Does all kinds of paving and concrete work—Asphaltic and Bituminous Pavements a Specialty—Also country road building and general contracting.

Has stone crushing, sand and gravel works at Erin, Ontario.

HEAD OFFICE---17 Queen Street East,
Toronto. Phone Main 1030.WORKS---636 Dupont Street and 2322
Dundas Street, West Toronto.**James Pearson Frederick B. Neeve**

Pres. and Treas.

Secretary

LUMBER AND MILLWORK

SAND AND STONE

We are sole agents for

Careys Eldstite Paving Joint

ASK FOR OUR PRICES AND DESCRIPTIVE LITERATURE

THE

Wm. Rutherford & Sons Co. Ltd.

425 Atwater Avenue

Phone Vic. 1620

MONTREAL, P.Q.

From the standpoint of Durability, Economy and Satisfaction

Let Us Build Your Road

No matter what your road problem may be Constructing, Repairing, Resurfacing or Waterproofing,
CONSULT US

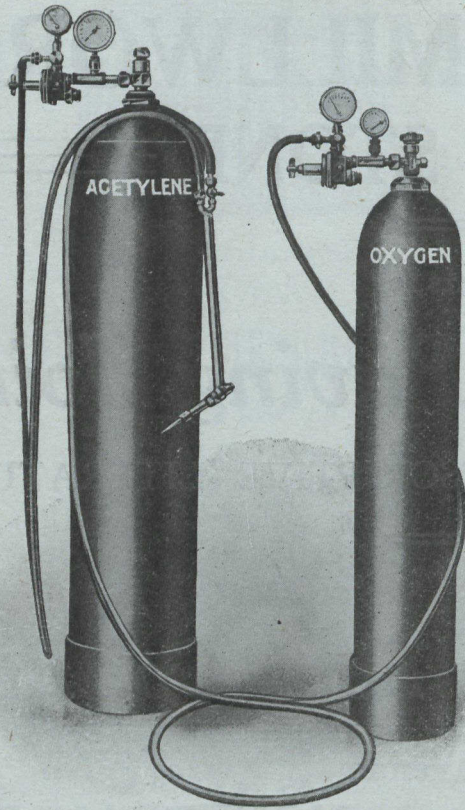
Our Engineers are always at your disposal

Building and Construction, etc., of any description

M. J. Stack Paving & Contracting Co'y Limited

PAVING CONTRACTORS

167 McCord Street, Montreal - Telephones Main 756 & Main 5428



Our portable dissolved acetylene welding plant

For

Builders and Contractors
 Water-works
 Gas-works
 Harbours
 Electric Power Plants
 Tramway Companies
 Road Dept.
 Mining Companies
 and in fact
 all Manufacturing Concerns
 where machinery is employed

An
 Oxy-Acetylene Welding and Cutting Plant is
 Indispensable

- 1st To cope quickly with breakdowns.
- 2nd To reduce cost of repairs.
- 3rd For construction purposes like welding gas and water mains,
 for ordinary and high pressure work, etc.

THE COST OF THE EQUIPMENT IS ALMOST TRIFLING

Apply to **L'AIR LIQUIDE SOCIETY**

MONTREAL

1 Ernest St. & 1st Ave.

WEST TORONTO

16 Boler St.

WINNIPEG

Pine near Sargeant

PIONEERS OF THE OXY-ACETYLENE WELDING and CUTTING

Exclusive Specialists in Manufacturing Oxygen, Dissolved Acetylene, Welding and Cutting Apparatus and Supplies.

Orpen Conduit Co., Limited

HEAD OFFICE AND WORKS: QUEEN & DUFFERIN STREETS

Toronto - Ontario

We are sole manufacturers of "XCELADUCT" GALVANIZED and "ORPENITE" ENAMELLED RIGID STEEL CONDUIT for interior construction.

It is a high-grade Mild Steel Tube made absolutely rust-proof by being first copper-plated and then electro-galvanized on top of the copper. It bends easily. Sharp, clean-cut, zinc-coated threads save the labour of re-threading and render bonding wires or ground clamps unnecessary.

"Xceladuct" copper-plating is a protective coating of great value in resisting corrosion — this alone would make it rust-proof. It also forms the best possible "couple" between the metal of the tube and the zinc coating.

"Xceladuct" zinc coating is a uniform and continuous deposit of pure zinc. There is no possibility of an alloy since the zinc is deposited on copper not on iron—and its full value as a rust-preventive is secured.



MADE IN CANADA

XCELADUCT

Galvanized Conduit, Elbows and Couplings



"Xceladuct" bonds with concrete. Its surface is absolutely clean, so that concrete wets it thoroughly and bonds with it without allowing the formation of pockets, in which corrosive elements might accumulate.

"Xceladuct" enamelled interior is entirely free from blisters, burrs or any obstructions. Its smooth, glossy surface allows rapid fishing without injuring the insulation of the wires.

The same grade of pipe is used in the manufacture of "Orpenite" Conduits as in "Xceladuct," which, after being cleaned by the same method, is coated both inside and outside with flexible black enamels, which have been selected with the utmost care as to finish, lustre, elasticity and durability, being acid-resisting, and are not affected by any dampness in walls or contact with lime, mortar or cement. The wires are constantly free from every disturbing influence on the insulation.

Each tube is ten feet long, "threads" on both ends, with coupling, and bears Underwriters Inspection Label and label bearing our name.

We carry a large and well assorted stock of both "Xceladuct" and "Orpenite" Conduits at Toronto, and can at all times make prompt shipments of large orders.

ORPEN CONDUIT COMPANY, LIMITED
TORONTO - ONTARIO

CANADIAN PREPAREDNESS

MURAD

THE
CIGARETTE



15¢



*Everywhere
Why?*

S. Anargyros

THE
CANADIAN
MUNICIPAL
JOURNAL

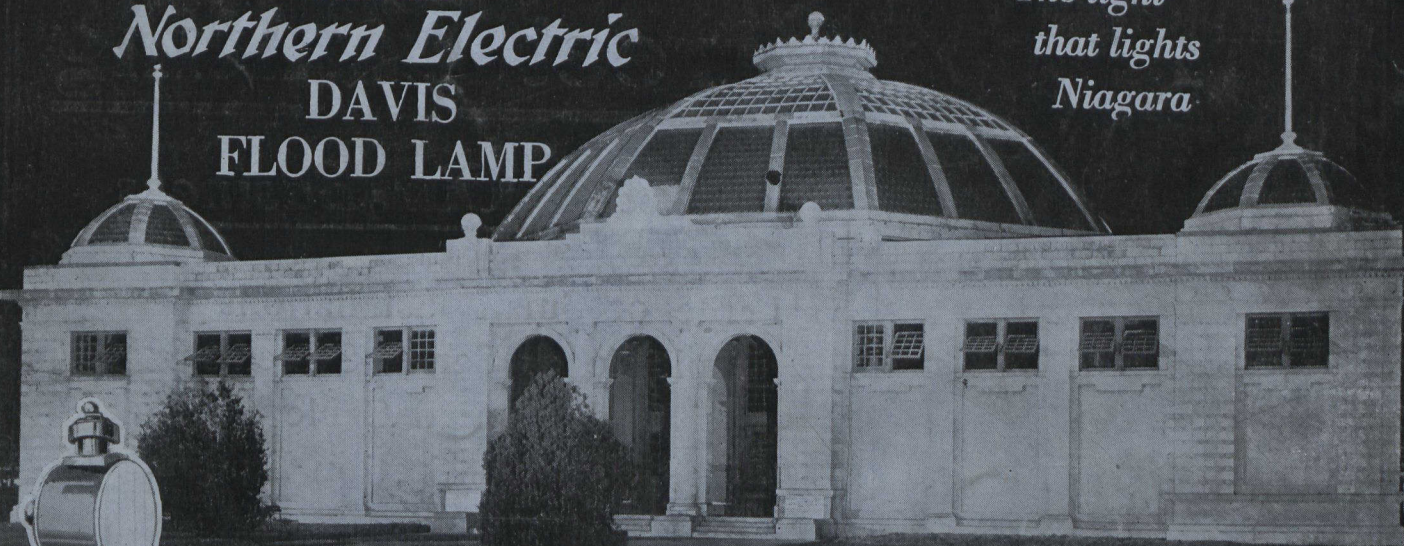
OFFICIAL ORGAN
 UNION OF CANADIAN
 MUNICIPALITIES

A Review of Canadian Citizenship

ELECTRIC DAYLIGHT

WITH THE
Northern Electric
 DAVIS
 FLOOD LAMP

*The light
 that lights
 Niagara*



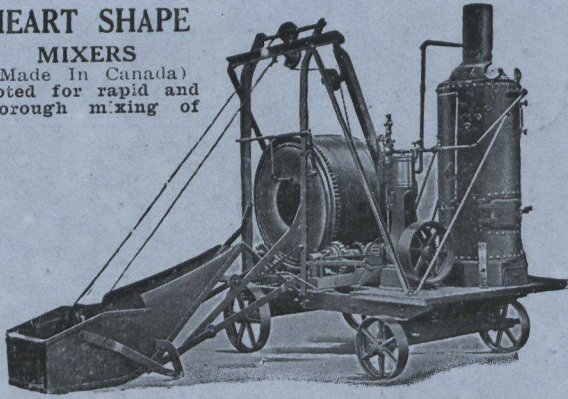
A portable, bright glareless light that turns night into day. It can be diffused over a large area or projected in a solid beam. These flood lamps are ideal for lighting municipal buildings, parks and playgrounds. They can be used anywhere. No arc lamp trimming—no moving parts—no permanent wiring. Write for our folder and tell us your lighting problems.

Northern Electric Company
 LIMITED

MONTREAL HALIFAX OTTAWA TORONTO
 LONDON WINNIPEG REGINA CALGARY VANCOUVER

HEART SHAPE

MIXERS
(Made In Canada)
Noted for rapid and thorough mixing of



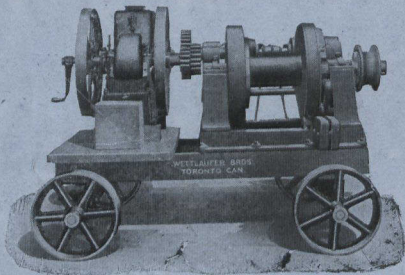
IMPROVED CONCRETE MACHINERY

(Made In Canada)

Crushers, Rolls, Brick, Block, Tile Machines, Hoists, Mixers, Road Pavers, Screens, Dump Cars. Full line of Contractors' Machinery and Builders' Supplies, etc.

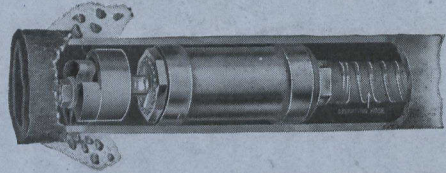
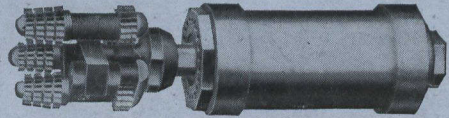
HOISTS

We save you money on your Hoisting Outfits, equipped with gas, steam or electric power, all Made in Canada. Write for Catalogue H. on all our machinery.



WETTLAUER BROS Limited.

178 SPADINA AVE. - - TORONTO, ONT.
BRANCHES—MONTREAL, HALIFAX, VANCOUVER WINNIPEG



LAGONDA BOILER TUBE CLEANERS

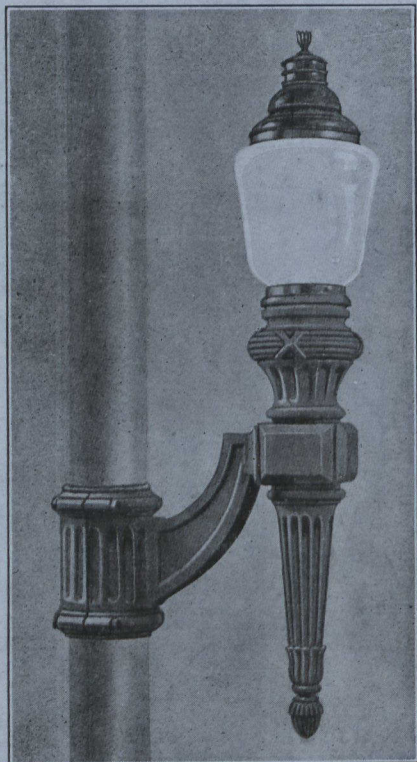
The latest Lagonda Water and Air-Driven Boiler Tube Cleaners are the most powerful and efficient tube cleaners made. They develop higher speed and greater power than has heretofore been secured with any Turbine Cleaner, and their use will materially shorten the time required in cleaning boilers.

These new Lagonda Cleaners are built for all sizes of tubes, either straight or curved, and they can be driven by water, air or steam.

Ask for Catalog L.

Babcock & Wilcox, Limited

St. Henry, MONTREAL.
Branch Office: Traders Bank Building, Toronto.



Street Lighting

That is Our Business

Large or Small Installations
Multiple or Series Systems
Underground Cable Material
Station Equipment

**A. H. WINTER JOYNER,
LIMITED**

100 Wellington St. West, TORONTO
Lewis Building, MONTREAL, Que.

"Consult a Specialist"