Problems of Staple Production in Canada

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TO
C. R. F.

PREFACE

An attempt has been made in this volume to describe basic trends in Canadian development and to provide an introduction to a series of volumes dealing with the particular problems of staple industries. The chapters are arranged to suggest the relation of the geographic background, especially the influence of water transportation, on the production of staples, and to emphasize the problem of overhead costs, incidental to the production of wheat, which have been crucial to our present difficulties. The effects of the pressure of debts during the depression have become evident in the problems of all governments and in political realignments. Scaling down of debts has become conspicuous all along the line, but has not been sufficient to check the move toward inflation. The disparity between prices of agricultural products and of manufactured products continues to create serious maladjustments. The difficulty of economic adjustments tends to accentuate the importance attached to political adjustments.

Recent trends in governmental policy have been directly a result of the enormous pressure of fixed charges in relation to depreciated exchange in a principal market for our raw materials, and to appreciated exchange in the market to which we pay a large proportion of our debts and interest charges. We have been caught in the vital problems of world post-war adjustment. We can hope for release through the scaling down of war debts and the efforts of the United States to stimulate recovery, but it is the intention of this volume to suggest that continued efforts are vital to the solution of deep-rooted problems of our national life. Such efforts involve an attack along four lines.

1. Checks on the growth of the burden of debt:

   (*a*) Cutting down government expenditures, although it is possible that this has gone as far as is economically feasible.

   (*b*) Extension of control, such as planned under the railroad arbitration board which will be able to draw on the accumulated experience of the railways and the Board of Railway Commissioners, in relation to governmental finance, federal, provincial and municipal drawing on the accumulated experience of the financial authorities involved—recognizing the differences of Australia, but attempting to set up a loan council to control borrowing.

   (*c*) Improvements in the administration and control of issues of

corporate securities to meet serious weaknesses in existing legislation.

(*d*) Continued rigid restriction of immigration.

2. Adjustment of the burden of debt by extension of the powers of existing machinery:

(*a*) The Tariff Board working with the Board of Railway Commissioners to even the burden as between western Canada or the main staple producing region and the more highly industrialized areas in the east.

(*b*) Combines investigation act machinery with a view to ironing out discrepancies between prices of manufactured products and agricultural products in so far as combines are a possible source of rigidity.

(*c*) Improvement of tax machinery, particularly in relation to income taxes, with a view to taxing at the source.

(*d*) Extension of existing machinery to protect labour along the lines of the Industrial Disputes Investigation Act and other legislation in the Dominion and the provinces, and the creation of new machinery such as wage boards.

(*e*) Improvement of marketing methods through encouragement of co-operation.

(*f*) Improvement of machinery for the relief of unemployment.

3. Reduction of the burden:

(*a*) Reduction of interest rates on government debts by tax or conversion.

(*b*) An extension of machinery in relation to debt adjustment boards and moratoriums with a view to continued scaling down of debts and reduction of interest rates.

4. Strengthening support for the burden:

(*a*) Continued attempts to develop external trade[1] along the lines of the imperial preference agreements and possible reciprocal agreements with the United States and the improvement of the position of trade commissioners.

(*b*) Reduction of costs particularly through support of research organizations with a view to increasing integration, conservation and the elimination of waste.

(*c*) Possible arrangements with Newfoundland.

(*d*) Improvement of banking machinery with a view to protection from governmental interference and to the avoidance of intense hostilities arising out of present arrangements.

(*e*) A search for possible avenues to attract capital with a view to increasing ultimate returns—such as St. Lawrence waterways and the Peace River outlet.

(*f*) Close co-operation between governmental organizations.

These suggestions are made on the basis of the analysis presented in this volume.

I have preferred to publish material of the sections with only slight alteration, since a consideration in making them available has been the demands of students for a volume which would include studies published in widely scattered and relatively inaccessible media. This plan obviously involved duplication, but on the other hand serves to emphasize and build up a cumulative argument. The sections have been arranged with this effect in mind.

Acknowledgment for permission to republish articles in this volume is gratefully made to the publishers of *Papers and Proceedings of the Canadian Political Science Association*, for "Transportation as a Factor in Canadian Economic History"; *The Dalhousie Review*, for "The Jubilee of the Canadian Pacific Railway"; *Moderne Organisationsformen der öffentlichen Unternehmung*, for "Government Ownership in Canada"; *University of Toronto Monthly*, for "The Canadian North"; *Report of the International Geographical Congress*, Cambridge, for "Industrialism and Settlement in Western Canada"; *Economic Journal*, for "Staples and the Depression"; *The Financial Post*, for "The Imperial Economic Conference."

I am indebted to Prof. C. R. Fay and to Prof. W. T. Jackman for criticisms on various sections.

H. A. I.

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[1] See H. Laureys, *Foreign Trade of Canada* (Toronto, 1929), *passim*.

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Problems of Staple Production

I. THE IMPORTANCE OF STAPLES

I. TRANSPORTATION AS A FACTOR IN CANADIAN ECONOMIC HISTORY

Transportation has been of such basic importance to Canadian economic history that the title of this paper may appear redundant and inclusive. The paper is intended, however, as an attempt to consider the general position of transportation in Canada, with special relation to its peculiar characteristics and their relationships to Canadian development, rather than to present a brief survey of Canadian economic history.

The early development of North America was dependent on the evolution of ships adapted to crossing the Atlantic. Water transportation[1] which had been of first importance in the growth of European civilization had improved to the extent that, by the beginning of the sixteenth century, long voyages could be undertaken cross the north Atlantic. These voyages were continued in relation to the acquisition of commodities for which a strong demand existed in Europe, and which were available in large quantities within short distances from the seaboard of the new countries. In the north Atlantic, cod was a commodity in the handling of which the advantages of water transportation was capitalized to the full. On the Banks, ships from Europe caught and cured the fish in preparation for direct sale in the home market. Early in the seventeenth century, following the opening of the Spanish market and the new demand for dried cod, ships from England and France developed dry fishing in Newfoundland, the remote parts of the Gulf such as Gaspe, and the New England shore.

Mr. Biggar has shown the relationship between dry fishing and the fur trade.[2] Penetration to the interior brought Europeans in touch with the resources of the mainland. The continued overwhelming importance of water transportation for the development of the interior warrants a brief survey of the more important waterways and their characteristics. The course and volume of the waterways in the north-eastern half of North America is largely determined by the geological background of the area. The Precambrian formation is in the form of an angle, with one side pointing toward the north-east, including northern Quebec and Labrador, and bounded on

the north by Hudson Straits, and the other to the north-west and bounded by the western Arctic. Hudson Bay constitutes a large portion of the territory in the angle. The resistant character of the formation and its relatively level topography have been responsible for a network of lakes and rivers. Its youthful appearance following the retreat of the ice sheets is shown in the number of rapids and obstructions to the tributaries and rivers. The major water courses flow roughly along the junction of the formation with later weaker formations, as in the St. Lawrence waterway which begins with the Great Lakes and flows north-east toward the Gulf, and the Mackenzie which flows north-west toward the Arctic. The St. Lawrence is fed from the north by important tributaries, such as the Saguenay, the St. Maurice, and the Ottawa, which are separated by low heights of land from rivers flowing to Hudson Bay. The main waterway[3] is broken by serious obstructions at Niagara and the St. Lawrence rapids above Montreal, and the tributaries have numerous rapids. The drainage basins to the south, the Mississippi, the Ohio, and the rivers of New York, are separated by comparatively low heights of land.

The commodity, supplied by this vast stretch of northern Precambrian territory, and demanded by Europe, was fur. The sailing ships were restricted to the mouth of the St. Lawrence River, and the opening of trade on the river and its tributaries necessitated the use of pinnaces.[4] Tadoussac became the first terminus, but was displaced by Quebec after the French became more familiar with the river channel to that point. The relatively level stretch of water from Quebec to Montreal was adapted to the use of large boats, and, with the improvement of the route, the depot shifted from Tadoussac to Quebec, to Three Rivers and thence to Montreal. In 1642 Montreal was established and the position of the French on this stretch of waterway consolidated. Beyond Montreal a third type of transport equipment—the canoe—became essential. The French were able to borrow directly from the equipment of the hunting Indians of the northern Precambrian area, and to adapt the transport unit, worked out by them, to their needs. With this unit French and English succeeded in bringing practically the whole of northern North America under tribute to the demands of the trade.

The canoe was adapted to the shorter Ottawa route to the upper country rather than to the longer and more difficult upper St. Lawrence and Great Lakes route. The trade of Georgian Bay, Green Bay on Lake Michigan, and Lake Superior was developed from this route to Montreal. Eventually La Vèrendrye and his successors extended it north-west to Lake Winnipeg and the Saskatchewan. The limitations of the birch-bark canoe, even after its enlargement and adaptation by the French, necessitated the establishment of depots for provisions at convenient points. Its

labour costs were heavy.

The upper St. Lawrence and Great Lakes route was never developed as a satisfactory substitute by the French, and the difficulties of La Salle with Great Lakes transportation in its initial development characterized its later history. The problems of organization of the route were enhanced by the competition of the Dutch and English through the Iroquois and the Mohawk route to Oswego prior to 1722, and through direct trade after the establishment of Oswego in that year. As a result of this competition, the St. Lawrence and Great Lakes route involved a substantial drain on the trade. Posts were established at Frontenac, Niagara and Detroit as a means of checking English competition and the upkeep of these posts involved heavy expenses for the colony. Eventually Toronto was added in 1749 as a further check to Indian trade with the English. The shorter route to Oswego and the use of large boats on the lake were factors which seriously weakened the position of canoe transport on the Ottawa.

Only with the disappearance of the French after 1760 did it become possible to combine satisfactorily the upper St. Lawrence-Great Lakes route for boats and vessels with the canoe route on the Ottawa. The lake boat became an ally to the canoe rather than an enemy. Heavy goods were carried by the lakes, and light goods were taken up and furs brought down by canoes. Cheaper supplies of provisions were available at Detroit and Niagara, and were carried at lower costs up the Lakes to Grand Portage and later to Fort William. Niagara portage was organized and a canal was built at Sault Ste. Marie. With the organization of Great Lakes transport it became possible to extend the trade far beyond the limits reached by the French. The North-West Company succeeded in penetrating from Fort William to Lake Winnipeg and the Saskatchewan, by Cumberland House and Frog Portage to the Churchill, by Methye Portage to Athabaska, the Peace and the Mackenzie, and by the passes across the Rockies to the upper Fraser and the Columbia. Supply depots were organized on the Red River, on the Saskatchewan, and on the Peace.

The efficiency of the canoe in serving as a transport unit from Montreal along the edge of the Canadian shield almost to the Arctic was dependent in part on the efficient organization of water transport along the Ottawa to Montreal, and on the Great Lakes. In 1821 this elaborate system collapsed and the canoe ceased to be a basic factor in transport. The boat again became an important factor in contributing to its failure, but from the north or Hudson Bay and not from the south. Ocean transport, in addition to supremacy of the Hudson Bay with boats in inland transport, proved of overwhelming importance.

Hudson Bay was developed as a trading area over fifty years later than the St.

Lawrence basin, and its growth depended largely on experience acquired in the St. Lawrence. Radisson and Groseilliers saw the possibility of tapping the trade from the centre of the Precambrian angle rather than from the outer edges. Accordingly ships were despatched to the mouths of the rivers flowing into James Bay and into Hudson Bay, and after the formation of the Hudson's Bay Company in 1670 the trade of the drainage basin began to flow toward the north. Ships were unable to visit the posts at the foot of James Bay because of the shallow character of the bay, and smaller boats were used to collect fur and distribute goods from a central depot on Charlton Island.[5] On Hudson Bay ships were able to visit the mouths of the Nelson and the Churchill rivers. The tributaries of the Hudson Bay drainage basin flowing from the east and the south were similar to those on the opposite side of the height of land flowing toward the St. Lawrence. But the vast interior of the continent to the west poured its waters toward Hudson Bay and forced a main outlet across the Precambrian formation by the Nelson River. This outlet and its tributaries served as an entrance to the north-west from Hudson Bay. The advantages of the route were continually in evidence but were overcome temporarily by the canoe route under the French and under the English. With the use of the boat on this relatively short stretch the long line of the canoe route was cut in the centre, and after 1821 all goods for the west were taken in by York Factory and the Fort William route was abandoned. For over half a century the York boat and Hudson Bay dominated the transport of western Canada. Brigades were organized throughout the Hudson Bay drainage basin and across to the Churchill, the Athabasca, the Peace and the Mackenzie rivers.

Water transportation facilitated the exploitation of furs throughout the Precambrian area and beyond, but the efficiency of technique determined the routes to be used. The ocean ship to Quebec, the large boats to Montreal, the *canôt de maitre* to Fort William, and the *canôt du nord* to the interior, assisted in the later period by the vessels on the lakes, proved unable to withstand the competition from the ocean ship to Nelson and the York boat to the interior.

The comparative ease with which the transport unit was borrowed and adapted, or devised to meet the demands of the water routes, gave the waterways a position of dominant importance in the moulding of types of economic and political structure. Rapid exploitation of the available staple product over a wide area was inevitable. Undoubtedly the character of the water routes was of fundamental importance in shifting the attention of Canada to the production of staple raw materials. It became necessary to concentrate energy on the transport of raw materials over long distances. The result was that the Canadian economic structure had the peculiar

characteristics of areas dependent on staples—especially weakness in other lines of development, dependence on highly industrialized areas for markets and for supplies of manufactured goods and the dangers of fluctuations in the staple commodity. It had the effect, however, of giving changes of technique a position of strategic importance in fluctuations in economic activity. In one year transport to the west shifted from Montreal to Hudson Bay. The St. Lawrence basin flourished with the opening of trade to the west and languished when it was cut off. The legacy of the fur trade has been an organized transport over wide areas especially adapted for handling heavy manufactured goods going to the interior and for bringing out a light, valuable commodity. The heavy one-way traffic made the trade discouraging to settlement, and in turn made the trade a heavy drain on settlement. The main routes had been well organized to handle trade over vast areas.

The disappearance of fur from the St. Lawrence basin was accompanied by the rise of lumber as a staple export.[6] The economy built up in relation to fur and water transport was shifted to the second product available on a large scale chiefly from the Precambrian area. Lumber in contrast to fur was a heavy, bulky commodity whether in the form of square timber, logs, deals, planks or boards, and consequently its transport on a large scale was confined to the larger tributaries and the main St. Lawrence route. The Ottawa and upper St. Lawrence and Lake Ontario drained the most favourable areas for the growth of the large coniferous species, especially white pine. Rapid exploitation was limited to the softwoods which had a low specific gravity and could be floated down the rivers to Quebec. Lumber supplied its own method of conveyance, and the evolution of rafts suitable to running the rapids of the lower Ottawa in 1806, and the rapids of the St. Lawrence at a later date, and finally the introduction of slides for the upper Ottawa, solved the problem of technique. Square timber was floated down the lower St. Lawrence to be stored along the tidal beach at Quebec in preparation for loading on wooden sailing ships for the protected markets of England.

The effects, on the economic development of the St. Lawrence basin, of dependence on lumber as a staple product, were the opposite of the effects of dependence on fur. Whereas fur involved a heavy incoming cargo, lumber favoured a large return cargo and consequently provided a stimulus to immigration and settlement. The coffin ships of the lumber trade made an important contribution to the movement of immigrants which became prominent after 1820. The trade created a demand for labour and for agricultural products. As in the case of fur it also created violent fluctuations in the economic activity of the colony, and its position as a raw material for construction made the St. Lawrence basin susceptible to an

unusual extent to the effects of the business cycle.

The increase in settlement in Upper Canada after 1783 and the decline of the fur trade in 1821 raised serious problems for transportation above the Niagara Peninsula and on Lake Ontario. As early as 1801 a Kentucky boat with 350 barrels of flour was sent down the St. Lawrence rapids with success,[7] and boats were used to an increasing extent to overcome the drawbacks of the route. A satisfactory outlet was obtained for goods going down-stream, but upstream traffic continued a serious problem.

The limitations of the St. Lawrence route were accentuated with the introduction of steam. The Industrial Revolution and its effects on transportation were destined to have a far-reaching influence on the economic history of Canada. Application of the new technique to a transport system adapted to the handling of raw materials on the existing waterways accentuated the influence of the waterways on the later development. The steamship was adapted first to the stretch of river between Montreal and Quebec and continued in operation after 1809. It served as a complement to the lumber trade, and immigrants were taken upstream from Quebec without the inconvenience of a long upstream pull. The pressure from improved transportation to Montreal became evident in the increasing seriousness of the handicaps of the St. Lawrence rapids and the Great Lakes. Steamship communication on Lake Ontario was limited by the rapids of the St. Lawrence. Under these handicaps the competition of the Erie Canal at Buffalo above Niagara, and of the Oswego route above the St. Lawrence rapids became important. An attempt to draw traffic from the upper lakes to the St. Lawrence River was made in the building of the Welland Canal, with eight-foot depth, completed in 1833. This improvement made increasingly necessary the improvement of the final link of the St. Lawrence rapids to Montreal. Eventually pressure from Upper Canada following the handicap of high costs on the upstream traffic of manufactured goods contributed in part to the Rebellion of 1837, to the Durham Report, to the Act of Union and to a determined effort to build the St. Lawrence canals. These canals were completed to nine feet in the forties, and lake steamers were able to go down regularly to Montreal after 1848.

It is important to emphasize at this point the relationship between the beginnings of the Industrial Revolution as seen in the application of steam to the St. Lawrence route, first from Quebec to Montreal, and later on the upper lakes, and the consequent pressure which led to the building of canals. These developments involved essential dependence on the government as seen in the Act of Union and the energetic canal policy of the first ten years. The Welland Canal was begun as a

private enterprise, but inadequate supplies of cheap capital necessitated purchase by the government.[8] The relation between governmental activity and water transportation became an important factor in later developments.

The completion of the St. Lawrence route and the stimulus to settlement, industry and trade which it occasioned, intensified other limitations of the route. Moreover the delay in opening the route was responsible for rapid depreciation through obsolescence. Attempts to improve the St. Lawrence and compete with the Erie Canal, and to attract the export trade of the Middle West, were defeated by the construction of American railways.[9] The problem of offsetting the handicaps of the route by land transport began at an early date. In 1727 complaints were made that contrary winds were a serious cause of delay on the journey between Montreal and Quebec, and by 1736 a road had been built along the north shore. Stage roads became necessary above Montreal and along the north shore of Lake Ontario to Toronto and west to Dundas and Western Ontario. The numerous ports along Lake Ontario became termini for roads to the back country.

This form of land transport, however, was far from adequate to meet the demands of trade and industry. Consequently the Grand Trunk was completed from Sarnia to Montreal in 1858. The old road from Toronto to Georgian Bay was abandoned with the completion of the Northern Railway from Toronto to Collingwood in 1854. Chicago and Lake Michigan traffic was captured by this route as well as traffic developed on Lake Superior by the Sault Ste. Marie Canal, completed in 1855. Finally the handicap of closed seasons for navigation on the lower St. Lawrence disappeared with the completion of a short line through the Eastern Townships to Portland (1853), and of the Victoria Bridge (1859). By 1860 the St. Lawrence had been amply supplemented by a network of railways. After 1863 the trials of the Allan line on the St. Lawrence route in the fifties were overcome and the ocean steamship became an increasingly powerful factor in the development of the route.[10] Unfortunately the location of the Grand Trunk as a line supplementary to the St. Lawrence route left it exposed to competition from that route and it was brought to the verge of bankruptcy in 1857. The overwhelming importance of water transport was shown in the route followed by the Grand Trunk in tapping traffic areas built up on the St. Lawrence. The completion of these early railways marked the beginning of the amphibian stage of transport history.

The cost of improving the St. Lawrence route in terms of canals and railways brought new problems to the Government. These problems with their solution were clearly presented by Alexander T. Galt in his reply to the Sheffield manufacturers in

1859:

> Dependence could hardly be placed upon a revival of trade to restore the revenue to its former point: but this would afford no means of meeting the future railway and municipal payments; and parliament had to choose between a continued system of borrowing to meet deficiencies or an increase of taxation to such amount as might, with economy of administration in every branch of the public service, or a revival of trade, restore the equilibrium of income and expenditure. It is true that another course was open, and that was to exact the terms upon which the railway advances were made; and to leave the holders of the municipal bonds to collect their interest, under the strict letter of the law. By these steps Canada would certainly have relieved herself from the pressure of increased taxation, and might have escaped the reproaches of those who blame the increase of her custom's duties. But it would have been at the expense of the English capitalists and legislation; and it would have been but poor consolation for them to know, that, through their loss, Canada was able to admit British goods at 15 instead of 20 per cent.

He elaborated this statement three years later in a report on the Reciprocity Treaty with the United States:[11]

> The undersigned commences with two propositions which will not be denied: first, that the consumer, under all circumstances, pays the entire cost of the article he uses; and secondly, that his ability to buy depends upon the net results to him of his labor after its product has gone into consumption in any form. Assuming these points as necessarily conceded, it is evident that in a new unsettled country, such as Canada was, and to a certain extent, still is, without roads, without canals, without railroads, with an uncertain, long and perilous communication with Great Britain, the cost of British goods at the early settlement of the country was enhanced [*sic*] by the doubtful credit of its merchants, high ocean freight, high insurance, heavy charges for lighterage, and finally after the goods reached Canada, by the enormous charges consequent on a trade conducted in the most primitive way, by the most primitive conveyances, and subject to the profits demanded by the numerous parties through whose hands it passed before it reached the ultimate consumer. Equally were the still more bulky

articles produced and forwarded in payment for goods, subject to similar deduction. Consequently not very many years ago, the settler in Upper Canada, and in many parts of Lower Canada, paid the maximum for his goods and obtained the minimum for his produce.

It has been remarked that legitimate protection, which home manufacturers may enjoy, is that afforded by the cost of bringing foreign goods into competition. It must therefore be admitted that under the circumstances in which Canada was then placed, this legitimate protection was necessarily very large, and that British goods were at a very great disadvantage. In very many cases it may, with perfect truth, be stated that the cost of the goods imported was enhanced to the consumer one hundred per cent., and equally that he only obtained one-half the ultimate price, or much less, of his produce in England. At the time to which reference is made, the duty on British goods, generally, was two and a half per cent., but the price to the consumer was raised enormously by the causes referred to, and his means of purchase in an equally important degree diminished. Now, under these circumstances, it cannot admit of a doubt, that if by an increase of five per cent. on the duty, a reduction of ten per cent. on the other charges were produced, the benefit would accrue equally to the British manufacturer and to the consumer, and the indirect but legitimate protection to the home manufacturer would be diminished; the consumer would pay five per cent. more to the Government but ten per cent. less to the merchant and forwarder. In this illustration lies the whole explanation of the Canadian Customs. The Government has increased the duties for the purpose of enabling them to meet the interest on the public works necessary to reduce all the various charges upon the imports and exports of the country. Light-houses have been built, the St. Lawrence has been deepened, and the canals constructed, to reduce the cost of inland navigation to a minimum. Railways have been assisted to give speed, safety and permanency to trade interrupted by the severity of winter. All these improvements have been undertaken with the twofold object of diminishing the cost to the consumer of what he imports, and of increasing the *net* result of the labor of the country when finally realized in Great Britain. . . .

(Signed) A. T. Galt,

Minister of Finance.

Finance Department,

Fiscal policy was therefore directly linked to problems of transportation, and it is scarcely necessary to add that the link has been a permanent one.

Fiscal policy became involved not only in the improvement of transportation by providing funds according to Galt's explanation but also in developing manufactures, trade and traffic. The development of industry contributed in turn to the growth of centres of large population and to an increase in traffic, a decrease in deficits and a lighter burden for the government. The demands of transportation improvements were reflected directly and indirectly in fiscal policy. The fixed charges involved, especially in canals and the improvement of water transportation and in railways, led to a demand for new markets in the east and in the west. Expansion eastward and westward involved Confederation. The debates of the period suggest that the Intercolonial was not commercially feasible and that it was undertaken as a political measure, but it is difficult to conceive of its construction without reference to the demands for new markets. In any case, the results were evident. An excellent line was built at heavy initial cost, as is the custom with government undertakings, heavy interest charges followed, the line was operated at a loss, and goods were carried at unremunerative rates from the larger industrial centre to the Maritimes. The industrial area of central Canada strengthened its position with cheap water transport and access to the coal of the United States and Nova Scotia, and new markets were found in the Maritimes.

Sir Edward Watkin of the Grand Trunk regarded expansion to the west as the solution of its difficulties.[12] The interest of Sir Hugh Allan in the early plans for expansion westward, which occasioned the Pacific Scandal, is significant of the continued importance attached to the development of traffic to the west in relation to the St. Lawrence route. The opening of the Intercolonial in 1876 gave the Allan line a Canadian winter port at Halifax, and the deepening of the St. Lawrence ship channel from seventeen and a half feet in 1860 to twenty-two feet in 1878 and to twenty-seven and a half feet in 1887, completed an efficient ocean steamship connection to Montreal in summer and to Halifax in winter. The immediate effects were evident in such divergent results as the rapid growth of the live-stock industry in central Canada, the rapid decline of the wooden sailing vessel, the displacement of Quebec by Montreal and the substitution of square timber by sawn lumber.

But of more striking importance was the demand for more rapid expansion westward to open markets for improved transport. From the standpoint of fiscal policy the outlay of capital in these improvements of transportation in canals and

railroads contributed to the difficulties of the Mackenzie administration and its free-trade policy in the depression of the seventies. The slow development of transportation to the west which followed from this policy was finally speeded up with the National Policy, which provided a guarantee of earnings on traffic carried within Canadian territory in case of success in keeping out goods and protecting the manufacturer, and a guarantee of revenue in case of failure to keep out goods with which to pay the deficit due to loss of traffic. The double-barrelled effectiveness of the policy was enhanced by recovery from the depression and the energetic construction of the Canadian Pacific Railway. Subsidies in money and in land and further protection of east-west traffic by the monopoly clause hastened the early completion of the line in 1885. It is only necessary to refer briefly to such additional developments as the establishment of the Pacific Ocean Services and the improvement of the line by the short line to St. John in 1890 and the construction of the Crow's Nest Pass Railway after 1897.

The depression of the nineties was in part responsible for the delay in expected results, but the final expansion after 1900 was undoubtedly dependent on the deepening of the Sault Ste. Marie Canal to nineteen feet in 1895, of the Welland Canal to fourteen feet in 1887, of the St. Lawrence canals to the same depth by 1901 and the St. Lawrence ship channel to thirty feet by 1906. The efficient transport system built up around the St. Lawrence basin for the handling of wheat hastened the industrial development of eastern Canada, including the iron and steel industry of the Maritimes, and contributed to the development of minerals, lumber and fish in British Columbia. Eastern Canada lost her position as an exporter of dairy products to England and became a producer largely for rapidly increasing urban population in the home market. Improved transportation, followed by the opening of the west, was responsible for the period of marked prosperity from 1900 to 1914.

An important result of the dependence of staple products on transportation has been the suddenness of the changes which followed. The St. Lawrence canals were not available until the last lock had been built, and then the whole route was opened. Again the rapidity of construction of the railway from Skagway to Whitehorse revolutionized the placer mining of the Yukon. These sudden and unpredictable results were particularly important in the rapid accumulation of revenue from the tariff after 1900 and in the unexpected profitableness of Canadian Pacific Railway operations. These developments contributed in turn to the construction of two other transcontinental lines, the Canadian Northern Railway by guaranteed government bonds, and the Grand Trunk Pacific by the construction of the National Transcontinental Railway. The results included bankruptcy, the Drayton-Acworth

report of 1917, and the Canadian National Railways and its problems.

The railway network has spread beyond the St. Lawrence basin but no one can deny the pull of the Great Lakes in recognizing the failure of wheat to move over the National Transcontinental Railway to Quebec. Canada has become to an increasing extent amphibian, but is still powerfully affected by the St. Lawrence basin. Nevertheless there are signs that the immense physical plant involved in transcontinental railways is beginning to have effects similar to those of the North-West Company at the peak of its activities. The decline in importance of virgin natural resources has tended, with the railways as with the North-West Company, to favour independent lines of growth. The Hudson Bay Railway, the opening of the Panama Canal, and the growth of trade through Vancouver to the Orient parallel the independent development on the Pacific coast and the supremacy of the Hudson Bay route in the fur trade. Even with the support of the industrial revolution there are signs in the growth of regionalism that the second unity of Canada is beginning to drift in the direction of the first and that the control of the St. Lawrence waterway is slightly but definitely on the ebb. The increasing strength of the provinces in contrast to the Dominion parallels the increasing importance of railroads and the staples dependent on railroads—minerals, pulp and paper. The seasonal fluctuations which characterize dependence on water transport tend to become less important with the continuous operation of industries linked to the railroads. The revolution which has followed the use of the gasoline engine as seen in the automobile, the truck, the tractor, the aeroplane, and the motor boat, and the opening of the north, appears to point in the same direction. We have been able to change the winter to the open season, and with electricity the sources of early difficulties to transportation have been converted into sources of power. All these tendencies point to an emergence from the amphibian to the land stage.

It is difficult to summarize the importance of transportation as a factor in Canadian economic history. We can suggest, however, the overwhelming significance of the waterways and especially of the St. Lawrence. Cheap water transportation favoured the rapid exploitation of staples and dependence on more highly industrialized countries for finished products. It favoured the position of Canada as an exporter of staples to more highly industrialized areas in terms of fur, lumber and finally wheat, pulp and paper and minerals. The St. Lawrence was important in the establishment of British power in Canada by its possibilities from a naval and military point of view, but even more from the standpoint of providing a basis for the economic growth of the empire in the export of staple raw materials and the import of manufactured goods. We cannot in this paper describe the economic effects of

dependence on these staple products other than to indicate the drain which they made in transportation costs on the energy of the community. We can suggest that each in its turn had its peculiar type of development and that each left its stamp on Canadian economic history. We can suggest that changes in technique, improvements in the waterways and in types of boats were responsible for rather violent fluctuations in economic development through the dependence on staple raw materials. It is scarcely necessary to describe the effects of dependence on water transportation on problems of finance involved in heavy expenditures and which led ultimately to subsidies and government ownership. Water transportation and dependence on staples have been responsible for a variety of heavy overhead costs. Dependence on staple products and the difficulties of the waterway probably delayed improvement of transportation on the one hand and hastened it on the other by permitting the borrowing of mature technique from the United States. Railroads built at a later stage of development were built more rapidly and the Canadian Pacific Railway was able to draw heavily on American experience in its early stage of development. Moreover depreciation through obsolescence in American transportation hastened Canadian development, and steamboats and captains, displaced on the Mississippi by railroads, moved up to the Red River, and the Saskatchewan, and the Fraser, as they did in turn in Canada from the Saskatchewan and the Fraser to the Mackenzie and the Yukon. The arrival of the first steamboat down the Red River to Winnipeg is surely the most dramatic event in Canadian economic history.

We have traced the evolution of transport in the fur trade, which reached its height in the expansion from the St. Lawrence following the development of vessels on the Great Lakes in combination with canoes on the rivers. This transport system disappeared with competition from the York boat from Hudson Bay. The disappearance of the fur trade from the St. Lawrence was followed by the rise of the lumber trade. Lumber tended to emphasize the efficiency of down-stream traffic on the large rivers, whereas fur tended to emphasize the efficiency of upstream traffic on smaller rivers. The growth of settlement which accompanied the development of the lumber trade led to a demand for efficient upstream transport. This demand became more effective with the introduction of steamboats on the St. Lawrence from Quebec to Montreal, and on Lake Ontario and the upper lakes, especially after the completion of the Welland Canal. Pressure from Upper Canada for improved upstream traffic led to the completion of the St. Lawrence canals by 1850.

The St. Lawrence route, as improved by canals, was further strengthened by the completion of the Grand Trunk Railway and its connections with the seaboard in the

following decade. These developments were in turn responsible for the completion of the Intercolonial to Halifax in 1876, and the deepening of the St. Lawrence to Montreal to twenty-two feet in 1878, and for the construction of the Canadian Pacific Railway completed in 1885. Finally the deepening of the Sault Ste. Marie, the Welland, the St. Lawrence canals, and the St. Lawrence ship channel paved the way for the opening of the west, the export of wheat, and the addition of two transcontinental railways.

Again, we have suggested the relationship between the importance of the St. Lawrence waterway and Canadian fiscal policy. The Act of Union was a prerequisite to the financial support adequate to completion of the St. Lawrence canals, and in turn Confederation was essential to the financial support necessary to round out the policy inaugurated in canals and supplementary railways, by further improvements and extensions to the east with the Intercolonial Railway and to the west with the Canadian Pacific Railway. The policy necessary to provide financial support was outlined by Galt, and whether or not his explanation was one of rationalization after the fact, or of original theoretical analysis, reliance on the customs was undoubtedly the only solution. In the main this policy provided the basis for the elaboration under the National Policy of 1878. According to Galt's argument, the payment of duties actually reduced protection in so far as they were employed in reducing the costs of transportation on imports and exports. But the growing importance of railways, after the construction of the Intercolonial Railway, favoured the addition of the protection argument as a means of increasing traffic, especially in manufactured products. The National Policy was designed not only to increase revenue from customs from the standpoint of the waterways but also to increase revenue from traffic from the standpoint of railways. The increasing importance of railways has tended to emphasize the position of protection rather than revenue.

We can trace in direct descent from the introduction of steam on the St. Lawrence waterways, the Act of Union, the completion of the St. Lawrence canals, the Grand Trunk, Galt's statement, Confederation, the Intercolonial, the National Policy, the Canadian Pacific Railway, improved St. Lawrence canals, the new transcontinentals and the drift toward protection. The overwhelming importance of the St. Lawrence waterways[13] has emphasized the production and export of raw materials, and in the case of wheat, the extraordinary effects of a protective tariff during a period of expansion contributed to the construction of two new transcontinentals, and to the emergence of the Canadian National Railways. The problem of the railways is essentially one of traffic to enable them to increase earnings without excessive cost to the producers of exports. The problem of

protection is therefore that of increasing the traffic of manufactured goods and thereby increasing earnings, with the result that railroad costs may be decreased to the producers of raw materials to an amount equal to or more than the rise in the price of manufactured goods as a result of protection. Dependence on the application of mature technique, especially in transport, to virgin natural resources must steadily recede in importance as a basis for the tariff. It will become increasingly difficult to wield the tariff as a crude but effective weapon by which we have been able to obtain a share of our natural resources.

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[1] *Vide* S. A. Cudmore, *History of the World's Commerce with Special Relation to Canada* (Toronto, 1929).

[2] H. P. Biggar, *Early Trading Companies of New France* (Toronto, 1901); H. A. Innis, "The Rise and Fall of the Spanish Fishery in Newfoundland," *Transactions of the Royal Society of Canada*, 3rd series, XXV, Section II, 1931, 51-70.

[3] M. I. Newbigin, *Canada, the Great River, the Lands and the Men* (London, 1926).

[4] Champlain in 1608 went from Tadoussac to Quebec in pinnaces.

[5] In 1932 as a result of construction of the railway to James Bay, the voyage conducted annually for over two and a half centuries through Hudson Straits to Charlton Island was abandoned.

[6] *Vide* A. R. M. Lower, *The Lumber Trade*, Doctorate thesis, Harvard University.

[7] *John Askin Papers*, II, 343, also H. A. Innis and A. R. M. Lower, *Select Documents in Canadian Economic History, 1783-1885* (Toronto, 1933), 138 ff.

[8] The Lachine Canal was also begun as a private enterprise. *Vide* J. L. McDougall, *The Welland Canal to 1841*, Master's thesis, 1923, University of Toronto.

[9] D. A. MacGibbon, *Railway Rates and the Canadian Railway Commission* (Boston, 1917).

[10] William Smith, *History of the British Post Office in British North America, 1639-1870* (Cambridge, 1920), Chs. XVII-XVIII.

[11] Report of the Minister of Finance on the Reciprocity Treaty with the United States, *Sessional Papers of the Legislative Assembly of the Province of Canada*, 1862, Sessional Paper No. 23.

[12] Sir E. W. Watkin, *Canada and the States* (London, 1887).

[13] The proposed improvement of the St. Lawrence waterways has not been given adequate consideration from the standpoint of the position of the St. Lawrence in the economic development of Canada. The valuable work done by antagonists and proponents of the scheme in terms of neatly calculated estimates has in the main tended to leave out of account the historical background and various incalculable items. This paper cannot undertake a detailed analysis but it does suggest that the tremendous investments of capital built up around the St. Lawrence system in terms of ships, canals, terminal facilities, harbours and railroads, from the standpoint of the export of wheat from the west will suffer materially from drains in other directions. Improvement of the St. Lawrence will contribute toward reducing the overhead costs of these tremendous investments. The strains on the political and economic structure built up largely in relation to the St. Lawrence would be lessened accordingly.

II. IRON AND STEEL, WHEAT AND FINANCE

By the end of the first half of the nineteenth century the St. Lawrence canals had been completed and steamships were able to make return trips from Lake Ontario to Montreal. In turn, ocean steamships were able to proceed to Montreal. The St. Lawrence became the open gateway through which the industrialism of Great Britain made its impact on Canada. Railroad construction in Great Britain in the first half of the century accentuated industrialism and contributed to the growth of an international economy which involved dependence on new supplies of food, and raw materials, and on new markets for manufactured products. Railroad construction was accompanied by the emergence of free trade. Moreover, the narrowing of demand for railroad iron and railroad engineering technique in the home market led to the search for new markets on the continent and in North America. Investors, wearying of railroad speculation in Great Britain in the forties[1] and of losses sustained in the South American republics, turned to the British Empire and found in the newly-established government of united Canada, with responsible government freshly achieved, strong support for security.

Lumber and wooden ships from Canada had practically completed their contributions in providing the framework for Britain's industrial equipment in terms of transport, factories and industrial towns. Iron steamships and the railroad began to bring wheat to the increasing industrial population of Great Britain. Wheat, iron and the new steel, and coal displaced lumber and wooden sailing ships. In the growth of an international economy in Great Britain, based on iron and steel, wheat became a foodstuff of dominant importance.

The transition from lumber and wooden sailing vessels to wheat and iron steamships and railroads is the key to the troubled economic development of the period after 1850. Whereas lumber and wooden ships had been direct contributions from Canada, wheat involved the use of steamships and the importation of iron from Great Britain. Wooden ships and lumber capitalized the advantages of the St. Lawrence and Canadian natural resources, while steam and iron involved imports of coal and capital equipment. The shipbuilding industry suffered devastating losses. The immigration of population and the importation of capital which accompanied the construction of railroads and the expansion of wheat production in Ontario brought heavy strains on an economy largely dominated by wood and water and winds.

The importance of the St. Lawrence waterways to the economic development of Canada from the standpoint of her relations with Great Britain, especially in the production of staples and in the impact of industrialism, involved serious problems of

finance. Completion of the St. Lawrence canals necessitated the financial support of government, and implied Lord Durham's report and the Union of 1840. Political organization and, in turn, responsible government were prerequisite to the financing of improvements of navigation on the St. Lawrence. Financial support was necessary for railroads intended to supplement and strengthen the position of the St. Lawrence by giving access to the sea in winter months, as in the case of the Grand Trunk to Portland and the Intercolonial to Halifax, and by overcoming obstacles, as in the case of the portage lines between the lakes. The financial support provided by the government for the improvement of the St. Lawrence by canals and railroads involved heavy debts without adequate methods of payment, particularly as a result of heavy depreciation through obsolescence following the improvements of alternative routes by the Erie Canal and railroads to New York. The deficits incidental to the enormous costs which followed the decline of a wood and water economy and the introduction of iron and steam, to the competitive weakness of the St. Lawrence, to the fluctuations in demand for the staple products wheat and lumber, and to competition from the industrialism of the United States which followed the Civil War, necessitated attempts to increase traffic by the St. Lawrence, to increase revenue from this traffic and to build up new markets in the Maritimes and in Western Canada. The rise of a protectionist policy, especially during periods of depression, was in part an attempt to check obsolescence through competition by dumping from more highly industrialized countries, in part an attempt to maintain the local market, and in part a direct result of the influence of the St. Lawrence and its demands for revenue to meet interest on improvements in navigation, and for a wider area from which to draw exports of raw materials. Confederation and the possibilities of wider credit were linked to the demands of the St. Lawrence and the new industrialism. The emergence of Canada as a modern state is inevitably a part of the spread of industrialism and capitalism. Confederation became an effective credit institution with the demands for long-term securities which accompanied the spread of industrialism especially as shown in transportation. The rise of Canada was in a sense a result of the demand for adequate imperial cost accounting which arose with Gladstonian liberalism. The implication of Galt's statement regarding the difficulties of 1849, following the repeal of the corn laws and the navigation acts, that "under such depressing circumstances the only hope lay in the fact that people had at last the management of their own affairs," was shown in the right to borrow on our own account and the right to pay our own debts. Responsible government provided the financial support for the spread of industrialism essential to the shift from lumber to wheat.

Extension of control from the St. Lawrence basin involved the territory politically dependent on the St. Lawrence as a result of the fur trade. The northern Precambrian, forested, fur-producing area and the agricultural area immediately to the south which supported the fur trade, and the Pacific coast basin, formerly linked under the North-West Company to the St. Lawrence drainage basin, were reclaimed from control of the Hudson's Bay Company through Hudson Bay after 1821. The economic developments of relatively isolated drainage basins were united by the railroad, and the unity based on the St. Lawrence, which had been destroyed after 1821 by the supremacy of the Hudson Bay route, was restored. Construction through the Precambrian area involved non-remunerative territory and was supported by traffic from the agricultural area. The agricultural territory, which was formerly subsidiary to the fur-trade territory, became the basic territory for the railroad and wheat. Confederation supported the railroad to the Pacific with subsidies of money and land and stretches of finished line.

The completion of the Canadian Pacific Railway in 1885 extended the base line of modern industrialism along the southern edge of Canada from the St. Lawrence basin. The outstanding characteristic of the period was a gradual strengthening of the position of the St. Lawrence drainage basin by the addition of railways and the application of steam to transportation and navigation.

The revolution in agriculture, especially in the production of wheat in Ontario which followed the railways, provided an economic structure including industry, financial organization, distributing systems and public financial policy, which served as the basis for the development of wheat production in Western Canada after the completion of the Canadian Pacific Railway. Improvements in transportation and communication hastened the development of trade and in turn the decline of barter. The gradual disappearance of illiteracy contributed to the spread of a money economy. Wheat production involved the development of a wealth of secondary industries based on the varied resources of the St. Lawrence basin. The economic framework developed in relation to wheat in Ontario was the basis for the expansion of wheat production in Western Canada. The period from 1850 to 1885 in Ontario was crucial to the period from 1885 to 1914 in Western Canada. The Intercolonial opened new markets in the Maritimes and the Canadian Pacific new producing areas in Western Canada.

As a result of industrialism and its effects on the St. Lawrence, Canada shifted to wheat and became an integral part of the raw material producing areas of the world and especially of the British Empire to supply the increasing industrial population of Great Britain. Production of staples which followed the importance of water

transportation involved the shipment of wheat and in turn of the products of mixed farming. In the Maritime Provinces more effective competition in markets dominated by water transportation accentuated the trend toward specialized production. The decline of shipbuilding was offset in part by coal-mining, but this in turn supported more effective competition from goods brought from the St. Lawrence by water and rail. The difficulties of the Maritimes which followed more direct competition between rail and water transportation were to some extent the opportunities of the St. Lawrence basin with its greater diversification in agriculture and industry. The economy of the St. Lawrence, based on wheat, had far-reaching effects on agriculture, industry and finance in the Maritimes. The latter were more exposed to the effects of industrialism applied to water transportation, and suffered accordingly. Recovery through specialization to take advantage of new markets provided by improved transportation was slow. Steam navigation and transportation had more devastating effects on the Maritimes than on Upper Canada, and such alternatives as wheat were not in evidence. Railroads were more serious for the Maritimes than for Upper Canada, as a result of the relatively greater importance of wooden shipbuilding.

Confederation as a credit institution was largely a result of the demand for long-term securities to finance improvements in transportation in relation to the St. Lawrence drainage basin. It was further an accumulation of debt which followed the devastating effects of industrialism in isolated areas. Severe fluctuations were conspicuous and a result of different factors in isolated areas. The depression of 1857 in the St. Lawrence drainage basin, for example, was paralleled by rapid expansion on the Pacific. Nor were the difficulties of the St. Lawrence in the fifties and sixties evident in the Maritimes. Rapid exploitation of natural resources characteristic of placer mining involved a government deficit in spite of the application by Douglas of the accounting technique of the Hudson's Bay Company to government projects. The deficit contributed by the expansion and rapid decline of the gold rush was assumed by the Dominion. In the Maritimes Confederation avoided in part the effects of the decline of wooden shipbuilding, but railroads continued to register deficits. In the St. Lawrence competition from the New York route had serious effects on government finance. Confederation became in part a buffer to modern industrialism and the reservoir of debts accumulated as a result of the difficulties of communities faced with the effects of rapid changes in mechanized transport and of the exhaustion of natural resources.

The effects of increasing debt and of deficits have been indicated in the emergence and expansion of the political unit under Confederation. The problem

was deep-seated. The importation of capital in the construction of railroads and canals was accompanied by a period of prosperity.[2] Depression abroad and the restriction of capital imports, the length of time necessary for traffic to develop on expensive through-line routes, low prices for basic export staples, wheat and especially lumber, depreciation of capital based on water routes as a result of effective rail competition, contributed to the difficulties which followed prosperity. More efficient transportation for imports, gradual increase in traffic on the railroads and canals, tariffs to increase revenue and to protect industries exposed to competition through lower costs of transport, higher prices for export staples abroad, and attempts to encourage further capital imports contributed to the movement toward prosperity. Increasing efficiency of the industrial equipment of more highly industrialized countries involved, for example, the lowering of the price of steel rails from £23 per ton in 1861 to £12 in 1870 and signing of the first contract for the importation of American rails for the Canadian Pacific Railway at $28.50 a ton in 1884. Assuming government subsidies to equal roughly the cost of rails, the incentive to encourage capital imports was overwhelming, especially with lower prices during the depression, and with prospects of increased economic activity, increased traffic, and increased revenue. The effects of changes from periods of prosperity to periods of depression, and in turn to periods of prosperity, were accentuated by the effects of the industrial revolution which followed mechanical transport. The net results were evident, in the difficulty of adjusting expenditures to receipts especially as dependent on imports, in checking the effects of increasing competition, through improved transportation and increasing efficiency, [3] on industries established during a period of prosperity, in a period of depression and possibly in encouraging new industries by more aggressive protection, and in meeting the interest on loans made during a period of prosperity. Low rates of interest during a period of depression and recurring deficits stimulated renewed activity in borrowing and in encouraging further construction. Deficits increased during a period of depression and borrowings during a period of prosperity. Throughout the period government debts increased and, in turn, tariffs and capital equipment. The completion of the Canadian Pacific Railway marked the end of the first stage, but the trend continued. The opening up of natural resources and lowering of cost of production by improved transportation offset in part the effects of increased debt, and with completion of the Canadian Pacific Railway vast new areas of wheat-producing lands were made available. The fathers of Confederation builded other than they knew.

[1] See L. H. Jenks, *Migration of British Capital to 1875* (New York, 1927).

[2] See K. W. Taylor, "Statistics of Foreign Trade," *Statistical Contributions to Canadian Economic History*, Vol. II (Toronto, 1931), passim.

[3] See Memorandum to Royal Commission on the depression of trade and industry, *Official Papers of Alfred Marshall* (London, 1926), pp. 4-5.

II. CAPITAL REQUIREMENTS

I. THE JUBILEE OF THE CANADIAN PACIFIC RAILWAY

On the twenty-first day of October, 1880, the most important document[1] in Canadian economic history was signed. The Honourable Sir Charles Tupper, Minister of Railways and Canals, concluded an agreement with "George Stephen of Montreal in Canada, Esquire; Duncan McIntyre of Montreal, aforesaid, merchant; John S. Kennedy, of New York in the State of New York, Banker; the firm of Morton, Rose and Company of London in England, merchants; the firm of Kohn Reinach and Company of Paris in France, Bankers; Richard B. Angus and James J. Hill, both of St. Paul in the State of Minnesota, Esquires," which was designed to complete the terms of Confederation by which British Columbia had joined the Union on condition that Canada would complete a railway to the Pacific seaboard within ten years. Parliament placed its seal of approval on the enlistment of private enterprise as the key to the achievement of Confederation, and the agreement was sanctioned by an Act assented to on February the fifteenth, 1881. On November seventh, 1885, the last spike was driven at Craigellachie; and on June twenty-eighth, 1886, the first through train pulled out of Montreal for Vancouver.

The government's policy in its reliance on private enterprise was immediately successful. The terms of union with British Columbia were fulfilled. The vast territories of northern North America, whose boundaries had been hammered out under the fur trade, were brought at one stroke into a unity in which the basic commodities demanded by modern industrialism—wheat, minerals, lumber and pulp and paper—were of first importance. The agreement essential to this tremendous achievement involved substantial assistance to private enterprise. "A subsidy in money of $25,000,000 and in land of 25,000,000 acres," sections of the line built by the government valued at nearly $38,000,000, and a monopoly of Western Canada for twenty years, were among the items granted to the company by the government. The support of the government involved a tariff to guarantee a market for manufactures from Eastern Canada, and to provide revenue to pay the subsidy and the cost of subsidiary transport arrangements. The interests of the road in the direction of monopoly control necessitated a southerly route by Kicking Horse Pass, later reinforced by branches south of the main line.

The effects of the achievement have dominated the history of Canada and the history of the railway. Immediately there arose problems in connection with the adjustment of the burden of the railway, and the arrangements by which it was to be

paid for out of the virgin natural resources of Western Canada. In this adjustment the protests of Western Canada against the monopoly clause finally succeeded in securing cancellation in 1888. Constant agitation led to the appointment of a Railway Rates Commission in 1895, and to the enactment of the Crow's Nest Pass agreement, a year later, guaranteeing stipulated reductions in rates in return for assistance in extending the control of monopoly to the south through the Crow's Nest Pass Railway. Finally the Board of Railway Commissioners was established in 1903, but the West continued to labour under the handicap of higher rates as a result of its position as non-competitive territory in contrast with competitive territory in the east.

Nor was the struggle confined to rates. Political development furnished fresh weapons to the West. The struggle for responsible government in Manitoba and in the territories led to the formation of the new provinces, the extension of their boundaries, and a determination to secure more adequate control over their taxing powers. The provinces encouraged the construction of competing lines. The existence of vast fertile land areas to the north of the section along the boundary line in which the Canadian Pacific Railway was entrenched, the prosperity of the Canadian Pacific Railway, and the growth of government revenues from the tariff under conditions of prosperity were additional factors contributing to the emergence of two additional transcontinental railways, the Canadian Northern and the Grand Trunk Pacific. Again, effective demands had been made for the construction of the Hudson Bay Railway, and finally, western farmers had succeeded in developing an independent marketing organization and in securing the Canada Grain Act of 1912.

Temporarily the War checked the general movement. The Crow's Nest Pass agreement was suspended, Hudson Bay Railway construction ceased, and the two new transcontinental lines went into bankruptcy. But the strategic position of the West in the post-war period hastened the movement which had its roots set in the past. Moreover, the prosperity of the war followed by the depression of the post-war period was responsible for a determination which led to the development of a strong competitor from the ruin of the two earlier transcontinental lines, the return to the Crow's Nest Pass agreement, the rise of Vancouver as a wheat port, the completion of the Hudson Bay Railway, the return of natural resources, the emergence of the Wheat Pool as a means of acquiring more substantial control over their products, and the decline of immigration propaganda. If one were disposed to believe in the efficacy of nicely rounded periods of time, the election of 1930 might be regarded as terminating the reactions which were set loose with the inauguration of a policy fifty years before.

The effects of the struggle have had a profound influence on the development of the Canadian Pacific Railway. By virtue of the strong support of the government during the construction period and its heavy financial drains, as well as the financial genius of Lord Mount Stephen, the company emerged with relatively low fixed charges. With the energy and engineering statesmanship of Van Horne, the solid foundation was rounded out into a well-balanced physical and financial system. From his appointment to the general managership in 1881 to his promotion to the Presidency in 1890 and his retirement in 1899, he was engaged in the execution of a policy which involved the acquisition of lines in the more densely populated areas in the east and in the United States, the extension of the system to Quebec, St. John and Halifax, and the expansion of services including Pacific steamships, grain elevators and telegraph lines. With the task completed, Van Horne the engineer began to lose interest. Before 1899 a friend was quoted as saying, "Did it ever strike you that he has the C.P.R. almost finished now—a great work securely established, a success that no one or nothing can possibly break? And just because it is a finished thing Van Horne positively is losing interest in it?" But he continued with the company in a prominent position on the executive committee, and saw his plans for an Atlantic steamship service and general improvements in the system carried out.

The results of the expansion of the system, which was practically completed by the end of the century, were shown in the marked expansion in earnings after 1900. Under the experienced hands of Lord Shaughnessy, who joined the company as purchasing agent in 1881, became vice-president in 1890 and president in 1899, the growth in the financial strength of the road was enormous. The long period of strain from the beginning of operations to the end of the century was followed by the period of remarkable prosperity from 1900 to the beginning of the war. Advantages of monopoly position in reference to the exploitation of natural resources were reaped to the full.

The strength of the forces against the position of the company was increasing toward the end of the period, but the defeat of the Reciprocity agreement in 1911 was in part an index of the company's position. Van Horne expressed its attitude when he said, "I am out to do all I can to bust the damned thing." It was not, as we have seen, until the post-war period that the influence of the opposition became effective. This period coincides roughly with the presidency of Mr. Beatty, beginning in 1918. With his promotion the company began the second stage of its career. Those who had been associated with it from the beginning were old men, and many had already disappeared from the scene. Van Horne and Lord Strathcona had died. Lord Shaughnessy, Lord Mount Stephen and R. B. Angus were soon to follow. It

was the task of Mr. Beatty of the young generation, who came to the company as a solicitor, to consolidate the position which had been achieved. A Canadian took over the property which had been built up on American experience. Lord Shaughnessy is reported to have finally committed the line to the care of Mr. Beatty with the words, "It is a great property! Conserve it."

The main stages in the company's history may be suggested more clearly by reference to certain indices of the road's development. Mileage, for example, increased from 4,338 in 1885 to 7,000 in 1899, or almost doubled under the régime of Van Horne; to 12,993 in 1918, again almost doubling under Shaughnessy, and to 15,216 in 1929, or increasing by one-sixth under Mr. Beatty. Gross earnings increased from $6,928,869 in 1885 to $29,230,038 in 1899, or four times under Van Horne; to $157,532,698 in 1918, or trebled under Shaughnessy; and to $209,730,955 in 1929, or by one-third under Mr. Beatty. Net earnings rose from $2,371,349 in 1885 to $12,230,165 in 1899, or by six times under Van Horne; to $34,502,388 in 1918, or by three times under Shaughnessy, and to $43,144,543 in 1929, or by one-third under Mr. Beatty. Fixed charges doubled from $3,068,081 to $6,816,676 under Van Horne, increased by one-third, or to $10,177,512 under Shaughnessy, and by one-third or to $16,149,002 under Mr. Beatty.

The régime of Mr. Beatty will probably be the most crucial in the history of the road. The problems and the success with which they have been met during the first part of his régime are a good omen for the future. As we have seen, the West has been largely successful during the post-war period in securing relief from the East, especially through the growth of the Canadian National Railways. Already the Canadian Pacific Railway has felt the impact of a new situation. In part the results are shown in the financial position of the road. For example, net surplus or surplus left after payment of all dividends (seven per cent. on common stock) and fixed charges on railroad operations, has fluctuated between a low point of $45,751 in 1929 and a high point of $11,020,663 in 1928. These violent fluctuations may be traced back to fluctuations in earnings and expenses, and more directly to increases in common stock, preferred stock and fixed charges. Railroad operations have been subject to such uncertain factors as the decision of the Wheat Pool to restrict exports in 1929. As contrasted with earnings from railroad operations, special income from investments, deposits, steamships, telegraphs and hotels has increased materially, and the surplus after paying a three per cent. dividend increased from $3,292,355 in 1922 to $6,007,200 in 1929.[2] These developments have been significant, and point in the first place to the strength and elasticity in the organization of the road and its ability to meet violent changes in traffic with success; and in the

second place, to the policy of the company in emphasizing other lines of development.

The second half-century in the history of the Canadian Pacific Railway begins with the company solidly entrenched in the economic development of Canada, and thoroughly equipped to meet the new problems with which it will be faced. Since the first half-century has been characterized by a struggle against its monopoly position, it is probably safe to say that at the beginning of the second half-century the railway has more good will than it has ever had at any period in its history. This good will has been partly a result of such measures as wider advertising, the numerous public speeches of its president, and possibly of the plan to split the stock; but it has been rather a result of a new turning-point in the company's history. It has become a great bulwark against the evils of government ownership and the dangers of monopoly from that direction. From a monopolistic position it has turned to that of a protector against monopoly. A significant speech has been reported from the president of the company, in which he said during the past summer (1930) that Canada should restrict immigration at least temporarily. The wheel has come full turn, and the agreement which enlisted private enterprise in the development of the Dominion has brought into existence safeguards in the form of a strong government-owned railway. More than this, the Canadian Pacific Railway will now pass into the stage in which it becomes in its turn a safeguard against the instrument it has called into existence.

It is dangerous to predict, but the good will which the company has achieved, its strong financial position and the success with which it has solved the problems especially of the last decade, are basic factors. Moreover, it is important to note that Mr. Bennett selected Winnipeg for his opening speech (1930), and that he emphasized the importance of the St. Lawrence waterway as a measure by which Winnipeg could retain its position in competition with Vancouver and Churchill. For Canada the Canadian Pacific Railway will remain as the keystone of Confederation, and a guarantee of continuation of the Dominion. As it has been the basic factor in the rapid expansion of Canada in the last half-century, it will become the basic factor in the stability of Canada's growth in the next.

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[1] See H. A. Innis, *A History of the Canadian Pacific Railway* (London, 1923), pp. 296-324.

[2] For the problems of later years see *Report of the Royal Commission to Inquire into Railways and Transportation in Canada, 1931-2*

(Ottawa, 1932).

II. GOVERNMENT OWNERSHIP IN CANADA

A. Federal Railways

Government ownership in Canada has been most adequately developed in relation to railroads. The strong and weak points are brought out most clearly in relation to projects which have the longest history in point of time and which operate over the widest areas in point of space.

The significance of railroads may be considered first in relation to the general background of Canadian development. The relatively late development of Canada followed from the overwhelming position occupied by the Precambrian formation in her geological and geographical structure. As a result of the location and extent of this area, the fur trade and the institutions peculiar to it exercised an important influence on Canada's history until a comparatively late date. Economically Canada continued as a series of disconnected units and included the Maritime Provinces, separated by geology and by closed navigation during the winter months from the settled area in the St. Lawrence Valley, the plains area which continued to import from Hudson Bay until the sixties, and the Cordilleran region which faced the Pacific following the break-up after 1821 of the compact economic unit dominated by Montreal. These areas were brought with Confederation into a political unity, but they were not of sufficient strength to support a railroad which was essential to permanent economic unity. The delay in her development meant that a railroad was dependent on potential economic strength and on a matured state of the industrial arts which would make possible comparatively cheap railroad construction through difficult country, and rapid exploitation of natural resources for the development of traffic to support the railway. The technique of wheat production in the plains areas, and of railroad construction, had been matured in the United States and England, and the demand for wheat accompanied the industrialization of Great Britain and western Europe. Strong government support was essential in throwing the bridge from a retarded development to an advanced stage of industrialism as represented by the railroad. The Confederation movement fostered by imperial support made possible the essential governmental assistance.

From this background it is possible to understand the character of Canadian railroads. They are designed to handle wheat moving from the plains area to the Great Lakes and to seaboard. A railway map of Canada will show a vast network of feeders in the plains areas pouring traffic to the main lines which converge on Winnipeg to a single well-built trunk line running to the head of the lakes and to

Montreal (recently reduced in part by the flow to Vancouver and Churchill). Heavy initial expenditure of capital is essential to rapid construction and rapid development of traffic. A realization of the importance of these factors is necessary to an understanding of the railway problem of Canada.

1. Intercolonial Railway

A consideration of the success of government ownership of railways under the federal government in Canada must begin with a survey of the history of the Intercolonial Railway. The long period of government operation of that line brings out the main problems of government ownership and an appreciation of its history is necessary to an appraisal of its present position as a part of the Canadian National Railways.

The Intercolonial Railway has been the object of detailed study by numerous students[1] of government ownership. In the main these studies have been written from the standpoint of profits as a measurement of the efficiency of the road, and its success or failure has been regarded from the standpoint of deficits and surpluses. The inadequacy of this standard of measurement must be emphasized at the beginning of a study of the railway. The road was built as a part of the agreement between the Canadian government and the Maritime Provinces and as an essential part of the federation of 1867. The sixty-eighth resolution adopted at the Quebec Conference, called to consider the basis of a federation in 1864, stated that "the general government shall secure, without delay, the completion of the Intercolonial Railway from Rivière du Loup through New Brunswick to Truro in Nova Scotia." The Canadian provinces (Ontario and Quebec) insisted on their good faith in a statement by a committee of the Canadian Executive Council dated August 14, 1865, "that they regard the construction of the Intercolonial Railway as a necessary accompaniment and condition of Confederation, and that not a day will be unnecessarily lost after the accomplishment of Confederation in commencing and prosecuting it to completion." Finally the British North America Act, section 145, stated, "Inasmuch as the provinces of Canada, Nova Scotia and New Brunswick have joined in a declaration that the construction of the Intercolonial Railway is essential to the consolidation of the union of the British North American colonies, and to the assent thereto of Nova Scotia and New Brunswick, and have consequently agreed that provision should be made for its immediate construction by the Government of Canada: therefore in order to give effect to that agreement it shall be the duty of the government and parliament of Canada to provide for the

commencement within six months after the union, of a railway connecting the river St. Lawrence with the city of Halifax in Nova Scotia and for the construction thereof with all practicable speed." At the same time that the British North America Act was passed, the Canadian Railway Loan Act was enacted as a part of the Confederation scheme "to guarantee interest at a rate not exceeding 4% per annum on any principal money not exceeding £3,000,000 sterling, to be raised by the government of Canada for the construction of a railway connecting Quebec and Halifax."

It was not expected that the railway would show a profit. The debates of the period are emphatic on the importance of the road as a political measure and on its probable difficulties as a commercial measure. The Hon. George Brown, in a speech dated Feb. 8, 1865, stated: "As a commercial enterprise, the Intercolonial has not, I apprehend, any considerable merit . . . but if the Union of the provinces is to go on it is an absolute necessity." Mr. Taschereau stated: "As a commercial undertaking the Intercolonial Railway presents no attractions, it offers no material for flattering prospectus, we could not invite to it the attention of European capitalists as presenting an eligible investment for their surplus funds. But for the establishing of those intimate, social and commercial relations indispensable to political unity, between ourselves and the sister provinces the railway is a necessity. It will therefore have to be undertaken and paid for purely as a national work."

Although the line was fundamentally a political and not a commercial route, once its construction had been decided upon by the passing of the British North America Act in 1867, the *line of the route was nevertheless chosen on the basis of commercial possibilities and cost of construction*. Of three main possibilities, the route following the north shore of New Brunswick to the Bay of Chaleur was favoured by both Major Robinson in a report dated Aug. 31, 1848, and by Sandford Fleming in a report dated Feb. 9, 1865. In the first report it was held that this route would provide the greatest immediate return for the expenditure and for the most extensive development of the commerce and fisheries of New Brunswick. Construction costs would be reduced by the proximity to the sea, grades would be lower along the least elevated portion of the country, and climatic disturbances could be more easily coped with. In the second report[2] it was pointed out that there was little prospect of any considerable "local traffic by any route and that no profitable route could be looked for from that source for many years. It was likewise shown that no great proportion of through freight would under ordinary circumstances be profitably carried over the proposed railway." Competition by water would be effective in summer and by the shorter American lines by rail in winter. Its value would appear as a potential competing route to keep down rates on American lines.

Moreover it was expected that an ocean terminus for passengers would be developed on Chaleur Bay and that the line would be responsible for closer relations with Newfoundland.

The route selected was regarded as offering the most traffic and as involving the lowest costs. The traffic areas of the Maritimes during the pre-railway period were dominated by water transport. The sea coast and the rivers were the important fishing centres, and the mouths of the rivers were the points at which lumber was manufactured. But although the railway line passed through the industrial areas it was not in a position to change materially industries which had grown up primarily in relation to water transport. The line became supplementary to an economic development based on the staples, lumber and fishing, which had grown up primarily in relation to water transport.

The construction of the road as a political rather than a commercial line has influenced its whole history. Construction was designed to handle heavy through traffic rather than local traffic. The engineer, consequently, insisted, against the advice of the Commissioners appointed to superintend the construction of the line, on iron bridges and on a substantial roadbed.[3] The chief engineer maintained that "although the first cost might be greater, the permanent structures would avoid the constant periodical charge for restoration which wooden work would require." After considerable protest, a circuitous route between the northern boundary of Nova Scotia and Painsec Junction running through Dorchester was adopted, as was also a route which made some concession to local interests[4] in connection with the Springhill Collieries between Truro and the northern boundary, but on the whole the location was that determined upon by the engineer in relation to through traffic. Mr. Sandford Fleming, writing on July 1, 1876, stated[5] that "the railway which now connects them [the provinces], I may venture to assert, will rank second to none on this continent. In the embellishment of its structures it may be surpassed by the lines of the old world but in the essentials of a railway it will when entirely completed have no superior."

On final completion of the line in 1876 the railroad included a through line from Rivière du Loup to Halifax to which were added sections from St. John to Shediac, from Truro to Pictou, and from Windsor Junction to Windsor—a total of 745 miles. In other words, it included a through line between Rivière du Loup and Halifax and lines designed to bring St. John in touch with the north shore, and Halifax with the Bay of Fundy and the north shore. Essentially it was a through line designed to handle heavy traffic from Canada to Halifax and forced to compete for this traffic

with waterways and shorter American roads. The cost of building 714 miles in 1876 was given as $34,363,896. The pledge to construct the road was generously fulfilled.

Considering the circumstances under which the road was built, no amount of statistical[6] analysis of surplus and deficits can prove or disprove its success. A deficit may be an indication of success inasmuch as it results from lower rates and a more satisfactory union between Canada and the Maritime Provinces. If the road must be regarded as an essential part of Confederation, its success is measured in terms of the value of Confederation. Nevertheless, we may perhaps consider certain factors as measuring rods of the relative success of government ownership in the case of the Intercolonial Railways. A reduction of the burden on the revenue of the Dominion government through increased earnings may be regarded as a favourable indication, especially if in addition the relations between the provinces have been improved.

This burden may be considered under two heads—arising from fixed charges or interest on capital and arising from deficits. Capital account increased roughly as follows by decades.

	Cost	Miles
1876	$34,363,896	714
1886	43,627,594	861
1896	55,007,937	1,154
1906	81,238,728	1,445
1916	108,131,150	1,450

The road began with a heavy capital cost chiefly as a result of the character of its original construction. Throughout its history various additions were made by increase in mileage and in other ways. An extension from Rivière du Loup to Hadlow (124 miles) was purchased from the Grand Trunk for $1,500,000 in 1879 and a branch from St. Charles to Point Levis (18 miles) was built in 1883. In the same year $170,000 was granted for the construction of small extensions at Halifax. A line was purchased from New Glasgow to the Strait of Canso and from Point Tupper to North Sydney and to Sydney. In 1899 an extension was purchased to Montreal for $7,600,000. In 1915 a line from Centreville to Gagetown (119 miles), a line from Campbellton to St. Leonard (111 miles) and a line from Sackville to Cape Tormentine (35 miles) were taken over. The net result of these additions was to strengthen the hold of the company on traffic-producing areas, notably through the

extension to Montreal, the branches to the interior of New Brunswick and to Cape Breton. Terminal facilities at Halifax and St. John were responsible for heavy outlay in capital. It has been argued that the capital account was used illegitimately to reduce working expenses but the net results in this case were merely a matter of accounting in which the government paid the charges directly on capital rather than on a possible deficit. The more serious effects followed from the inability of management to work out an adequate control system in its accounting methods. In 1915 the interest paid on the capital of $108,131,509 at 4 per cent. was $4,325,260.

An analysis of earnings means little under conditions in which expenses are shifted to capital account following the vicissitudes of finance ministers and inefficiency of management. Nevertheless a general survey of the tendencies of net earnings and in turn of gross earnings and expenses will throw some light on the problems of government ownership. As would be expected, the early years of the road were marked by deficits. The depression of the seventies was responsible for years of heavy deficits from 1876 to 1880, and the recovery of the early eighties brought light surpluses from 1881 to 1884. Recovery brought an increase in local freight and through passenger traffic. Moreover, an investigation in 1879 led to a marked reduction in numbers of the staff and reductions in costs of operation; and the extension of the main line to Chaudière strengthened control over through traffic. Heavy deficits followed from 1885 to 1892, with steadily increased earnings to 1890. Freight tonnage increased, local freight and through freight improved. Local passenger traffic improved, but through passenger traffic declined, beginning in 1885. The grain trade improved down to 1892 both as a result of the opening of the short line (C.P.R., Montreal to St. John) and of the Intercolonial extension. The coal trade increased in local and through traffic to 1890. Lumber increased as did other items of freight. Deficits during a period of increasing traffic were apparently the result of the necessity of building up the rolling stock to the same standard as the roadbed. Improved rolling stock and an excellent roadbed, combined with the appointment of an energetic Minister of Railways, led to an improvement in 1893 and to a surplus in the next three years. Deficits for three years followed from a decline in traffic. The period of prosperity which characterized Canadian development from 1898 to 1914 had its effects on the Intercolonial Railway, which were shown in a marked increase in earnings. The Intercolonial was able to share in this improvement following its extension to Montreal in 1898. Nevertheless, in spite of the general improvement in earnings, the road suffered from occasional serious deficits. A surplus of 1900 was converted to a serious deficit in 1901. In 1905 a

deficit followed severe winter weather conditions and heavy snowfall and the necessity of handling hay free of charge for the owners of eastern Nova Scotia and Prince Edward Island. A marked decrease in traffic in 1909 and increased expenses caused a heavy deficit. A reorganization of management in 1910 brought a general improvement and a series of surpluses after that year.

The fluctuations in surplus suggest a serious defect in the management of the road. To a very large extent the fluctuations were the result of expenses. These were occasioned by heavy expenditures on rolling stock and by such events as accidents of the weather. The railroad failed in its ability to develop elasticity in handling expenses. It was handicapped as a marginal road built for political purposes in its competition with water and shorter rail routes. Its through traffic was affected materially by competitive factors and at the same time expenses were seriously increased by the necessity of handling highly-competitive through traffic. Heavy rolling stock and equipment employed for through traffic made it difficult to control expenses. The margin for control was slight. Severe winters which greatly increased costs had serious effects on expenses which it was impossible to avoid. On the other hand, it was possible for various managements to convert by energetic direction a deficit into a surplus. The railroad was handicapped to the extent that it was not built from the standpoint of earnings and it did not command consistent managerial ability in its direction. Costs were apt to increase as a result from larger numbers of employees and higher wages, and the essential elasticity required by a road handling through traffic was not in evidence. These results do not follow essentially from government ownership but rather from the conditions under which the road was built. Given a heavy capital outlay on a roadbed built from the standpoint of political union rather than commerce, the effects on fixed charges, expenses and earnings described becomes inevitable. It is significant that more adequate accounting systems have been introduced and that in the later stages management was able to introduce much more elasticity than had formerly been evident. The building up of rolling stock and eventually of management was an indication of the extent to which government ownership was successful.

Management with a view to profits was hampered by a general recognition of the importance of the road in serving its customers. A large number of stations, the issue of a large number of passes, especially at election times, and other types of political patronage, were factors increasing costs. But the most serious of its problems followed the low rates. Rates were kept down as a result of water competition for through and local traffic, including subsidized steamship lines, of rail competition (Montreal to Halifax by I.C.R., 838 miles; by C.P.R., 755 miles), and of

port competition, especially St. John, Portland and Boston.[7] "At almost every important point on the road it had to face water competition. The Intercolonial Railway has settled land only on one side of it: it has water on the other side. It is a one-sided institution in that respect and suffers under that disability." Various government officials admitted that sections of the line between Moncton and Point Levis and the latter point and Montreal were run at a loss, whereas the local traffic on the section between Halifax and St. John was remunerative. Low rates were maintained to develop traffic and to reduce the hostility of the Maritime Provinces to the tariff imposed by Canada. Numerous comparisons have shown that rates were lower on the Intercolonial than on any Canadian roads. The results in fixed charges and deficits are a part of the cost of protection imposed in favour of Canada. Local rates were high enough to give profitable returns in the Maritimes and it was not the plan of Confederation that they should be made to pay by higher rates the expenses of the non-paying stretch of line joining the Maritimes to Canada.

The Intercolonial is a difficult line to study so far as the success of government ownership is concerned since it was not planned as a commercial line. This very fact has been responsible for most of its peculiar problems. Government construction involved a heavy initial burden of capital investment. The results which should have followed in lower costs of operation were not in evidence because of the relative scarcity of through traffic and its highly competitive character. The weak position of the road placed a decided handicap on continued efficient management. Accounting control was difficult to effect, and the road was subject to severe fluctuations in earnings and expenses throughout its history. Undoubtedly the road was handicapped by its weak position, by its political character and by its subordination to local needs. The problem of giving management a strong hand was only solved gradually, and the road was weakened by the closeness of its relationship with the government.

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[1] See D. R. Cowan, *A History of the Intercolonial and Prince Edward Island Railways of Canada*, Master's thesis, University of Toronto.

[2] Sandford Fleming, *The Intercolonial* (Montreal, 1876), p. 70. See also his report in 1868, pp. 84-85.

[3] Sandford Fleming, *The Intercolonial* (Montreal, 1876), pp. 97-98 ff.

[4] Ibid., pp. 86 ff.

[5] Ibid., p. ii, but also "to serve comparatively insignificant interests was twisted many miles out of its proper course," p. 101.

[6] S. O. Dunn, "Failure of Government Ownership in Canada," *Journal of Political Economy*, 1916, pp. 547-571, presents elaborate statistics showing the cost of the line to the government.

[7] "On account of the energetic management of the Canadian Pacific Railway and the shorter distance by their line, perhaps the most valuable portion of the traffic we had was diverted to the Canadian Pacific Railway and they carefully avoided the carriage of articles which were not paying, such as grain, coal, stones, and other heavy articles, leaving these to be carried at a loss by the Intercolonial Railway." Debates, House of Commons, May 10, 1892. By providing accommodation between St. John and Halifax for C.P.R. short-line passengers, the Intercolonial competed with itself and in several ways it was forced as a government line to furnish privileges to the C.P.R.

2. Prince Edward Island Railway

As in the case of the Intercolonial Railway, the Prince Edward Island Railway was taken over by the Dominion government when the Province of Prince Edward Island was admitted to Confederation, "The railways under contract and in course of construction for the government of the Island should become the property of Canada" was an item in the resolutions drawn up as a basis for union. The line was opened for traffic in 1875. It included a main line of 146 miles and two extensions, one of 13 miles and one of 39 miles—a total of 198 miles. The capital expended up to 1915 on the road amounted to $9,490,899, and included additional branches, bringing the total mileage to 275 miles. The railroad has never paid its working expenses, and various items ordinarily included in expenses have been added to capital. It was stated by the Minister of Railways[1] "that it is not fair to expect and nobody does expect that the revenue account of the Prince Edward Island Railway will ever balance. The traffic is not there, and Parliament must be prepared to run the railway for the accommodation of the people and to take out of the Consolidated Revenue Fund whatever deficit there may be." Water competition was again an important factor in keeping down rates and the general construction of the road in relation to the demands of special interests was responsible for heavy operating expenses. Congestion of traffic in the autumn, which followed from the lines serving an agricultural section, heavy snowfalls, and the difficulty involved in maintaining

connections with the mainland, have increased costs. Communication was eventually established after a long and expensive series of experiments. The introduction of a car ferry and of a standard gauge throughout the system have helped materially. In the main the Prince Edward Island Railway must be maintained by the federal government as one of the costs by which Confederation was achieved.

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[1] Debates of the House of Commons, February 1, 1910.

3. Canadian National Railways

The Intercolonial and the Prince Edward Island railways were built as part of the cost of Confederation which the Dominion was willing to assume. From the government's standpoint the revenue obtained by control acquired in the B.N.A. Act was sufficient to offset the costs involved. The Intercolonial was an extension to seaboard which promised partial relief to the difficulties involved in the heavy commitments of the government to transportation by providing more traffic and a new market for manufactures in central Canada protected by the tariff from American goods. The advantages of the tariff and the new market to eastern Canada were paid for by low rates in the Maritimes. Government ownership became a means by which the outlying section of the Maritimes was brought within reach of the manufactures of eastern Canada. It was a means of maintaining connections all the year round with the seaboard and of offsetting the overhead costs of expensive transportation commitments on railway lines competing with water routes. How far the ultimate cost was borne by the general consumers of eastern Canada, because of higher tariff rates to raise revenue and by the people of the Maritimes who were conceded low freight rates, would be difficult to determine. Maritime grievances have run to the effect that the results have been to their disadvantage. There have been no material complaints on the part of the central provinces against paying the deficits of the line or the revenue necessary to pay the deficits. The intrusion of government ownership in the Intercolonial as a political measure has given rise to numerous complaints and has prevented Confederation from becoming the vital unity which it should have become.

The later experiments in government ownership have been undertaken under similar conditions. If the Intercolonial was a means of providing an eastern extension to the Grand Trunk Railway, the Grand Trunk Pacific was a western extension. Strong government support of the Grand Trunk led to government ownership of the

Intercolonial, just as we shall see strong government support of the C.P.R. leading to government ownership of the C.N.R. The success of railroads in Canada in the long run must depend on their transcontinental character. In eastern Canada the St. Lawrence waterways played an important role in early settlement. Economic development has been closely linked with water transportation. Railroads in eastern Canada are consequently forced to compete with waterways in those areas of Canada which have the greatest traffic density. The Grand Trunk Railway has been forced to protect itself with a short branch to the American seaboard at Portland and with an extension into American territory through Michigan to Chicago. But even with these extensions it has been forced to meet rail and water competition of a severe character. In western Canada traffic is at present largely restricted to the grain-producing area, and railways are forced to find an outlet for the grain carried over their lines and to extend to the Great Lakes. From the standpoint of grain traffic, a terminus at Fort William or Port Arthur would be sufficient, but the seasonal one-way character of that traffic and the character of the industrial tariff against the United States renders essential the extension of lines to the manufacturing centres of the St. Lawrence waterways and to the Atlantic seaboard. The movement of wheat from western Canada is of first importance in determining the character of Canadian railroads. In British Columbia costs of railroad construction and operation are high, and the density of traffic light. On the other hand, the development of trade with the Orient and the opening of the Panama Canal have given lines from the wheat-producing areas an alternative route to the Pacific. But these lines compete with lines to Atlantic ports and again because of the tariff have not the possibility of developing manufactures on the return haul from Vancouver.

But even under the most favourable circumstances in which a railroad has been able to obtain a strong foothold in the industrial areas in the east to build up an extension to the Atlantic seaboard and to construct branches in the wheat-producing areas in the West as well as to continue its lines to the Pacific, it has only been through extensive subsidies in land, money, government guarantees, and railroad lines and by protection of its east and west traffic by means of the tariff and monopoly clauses that the C.P.R. has been able to present a successful history. The long stretches of line through non-productive territory between the St. Lawrence Valley and western Canada and between western Canada and the Pacific seaboard have been important factors in the policy of the Canadian government in supporting the Canadian Pacific Railway and in the policy of the Canadian Pacific Railway in developing traffic.

One of the immediate results was the rapid settlement of the West and the

phenomena which characterized the marked advance in Canada's economic development after 1900. In this advance the Canadian Pacific was able to gain a larger share of the traffic in eastern Canada, and it became increasingly necessary for the Grand Trunk to find some means by which it could strengthen its position. The old expedient of gaining an entrance to western Canada was revived[1] and the Grand Trunk proposed construction for a line through North Bay to Winnipeg and the Pacific. In carrying out its proposal and in soliciting government support, the essential basis of success in the case of the Canadian Pacific—the linking of the industrial areas of the St. Lawrence with the wheat-growing areas of the West, as proposed by the Grand Trunk—was disregarded. Stress was placed at first on the possibility of building up Quebec industrially, as the Canadian Pacific had built up Ontario, and on the opening of new country in northern Quebec to serve the rapidly expanding population of that province. Meanwhile the claim of the Maritimes, together with that of Ontario, led to the adoption of a programme providing for a line from Winnipeg to Quebec and Moncton. The proposed line had no relation with the eastern lines of the Grand Trunk Railway other than at Quebec. It was dependent chiefly on seaboard-moving traffic in the case of wheat, and this in competition with the Great Lakes rail and water route (its own line ran from Superior Junction to Fort William), on slowly-developed local traffic and on lower tariff barriers which, through the defeat of the reciprocity agreement of 1911, did not materialize.

The final agreement called for the construction of the line between Moncton and Winnipeg by the government, to be rented on construction to the Grand Trunk Pacific, a subsidiary of the Grand Trunk, for fifty years at a percentage rental of the cost of construction. The line west of Winnipeg was to be built by the Grand Trunk Pacific, with substantial government assistance. As in most cases of government construction in which capital is obtained at cheaper rates, the long run point of view becomes more important, and a substantial roadbed[2] is put down for the immediate handling of heavy traffic rather than a light, inexpensive roadbed for the development of traffic. Consequently in spite of supervision by the Grand Trunk Pacific, the estimated cost of $61,415,000 reached a total of two and one-half times as great, or $159,881,197. As a result of this high cost, the Grand Trunk Pacific refused to undertake operation of the eastern line built by the government. The Grand Trunk had on its hands two separate units—that of Western Canada in the hands of its subsidiary, the Grand Trunk Pacific, and the old lines in eastern Canada, and the obligations incidental to its agreement with the government in building the eastern line. The western lines of the Grand Trunk Pacific were built with government assistance in the form of a guarantee of a fifty-year first mortgage of 3 per cent.

bonds at the rate of $13,000 per mile on the prairie section between Winnipeg and Wolf Creek (914 miles) and a guarantee of bonds totalling 75 per cent. of the cost of the mountain section from Wolf Creek to Prince Rupert (832 miles). Loans were made by the government to the extent of $10,000,000 at 4 per cent. in 1909 and $15,000,000 at 4 per cent. in 1913. The provincial governments of Alberta and Saskatchewan guaranteed bonds to the extent of $13,469,004. The cost of construction of the main lines was estimated by the Dominion government at $93,307,184 on the Moncton section and $37,424,653 on the prairie section. The prairie section was built in a substantial fashion, with comparatively low gradients and solid roadbed. On the whole, the line was more expensive than was justified by the traffic[3] both on the prairie section and the mountain section. The comparative ease with which government guarantees were secured, the high standard of the eastern division constructed by the government, and the lack of experience in building prairie lines probably accounted for the character of the road. On December 10, 1915, the Grand Trunk Company was forced to inform the Prime Minister that it was not able to meet its obligations in relation to the Grand Trunk Pacific Railway. The Railway Inquiry Commission suggested that the difficulties arose in part from the location of the company's headquarters in London, and recommended that the control of the Grand Trunk Company and of the Grand Trunk Pacific Company "should be surrendered into the hands of the people of Canada." It is sufficient to point out that the characteristic feature of government construction in Canada which involved heavy initial capital outlay was an important factor in the failure of the Grand Trunk and the Grand Trunk Pacific.

The Canadian Northern Railway represented a different line of growth from that of the Intercolonial and the Grand Trunk Pacific Railway. In its origin it was not concerned with eastern Canada and began with the amalgamation of two small railways in Manitoba in 1898. The new company was controlled by the firm of Mackenzie and Mann, who had been formerly engaged on contract work in the construction of the Canadian Pacific Railway and who were thoroughly familiar with railway construction on the prairies. On the other hand, the company illustrates clearly the problem of railway construction in undeveloped territory, and the problem of developing traffic in a new country. It was able to build branches in western Canada economically and at a low cost with the aid of the provincial governments. The lines were built advantageously from the standpoint of traffic and with proper "regard for economy and the creation of a permanent public service utility." Its construction as a competitive line involved some duplication of track, especially with the C.P.R. in the Fraser Valley and with the Grand Trunk Pacific from Edmonton to

Yellowhead Pass. There was no evidence that large sums of money had been spent in putting down a heavy roadbed with substantial initial expenditures.

Whereas the road was built economically in the prairie sections and in the other sections, it illustrated the tendency towards continental development. With the development of traffic in the wheat-growing areas, it became necessary to extend its lines to the Great Lakes and to the Pacific rather than to deliver its traffic to other lines already built and already operating at capacity. The Canadian Pacific had been forced to double-track the spout of the hopper between Winnipeg and Port Arthur. The Grand Trunk Pacific had found a similar line necessary. The heavy, seasonal, one-way, peak-load character of grain traffic necessitated an extension to the Great Lakes, and to eastern Canada, in order to gain control of traffic moving from the manufacturing centres to western Canada. In the movement of bulk traffic in the form of raw materials from western Canada to the seaboard, the Canadian Northern found it necessary to push extensions to the east and to the west and to become a transcontinental line. In the construction of these extensions and in completing the lines in difficult areas from the standpoint of construction, the Canadian Northern found it necessary to rely on the Dominion government. Although able to command support from the various provinces and municipalities, it found itself in 1914 in a position in which it was necessary to call on the Dominion government for a guarantee of $45,000,000 of its bonds. The extent of this support was limited by the difficulties of raising funds during the war period, and the Railway Inquiry Commission of 1917 recommended, as in the case of the Grand Trunk Pacific, that "the people of Canada should assume control of the property."

From a brief survey of the growth of the Canadian Northern Railway it becomes obvious that railroad construction in a new country involves even under the most favourable circumstances the investment of large sums of capital prior to the development of traffic. Adequate sums of capital have not been available other than through governmental support on the part of municipalities, provinces, or the Dominion. In Canada the problem has been complicated by the necessity of constructing lines between traffic-producing areas through long stretches of territory with light traffic density. The essential transcontinental character of Canadian railroads has involved immediate heavy expenditures of capital and substantial government support.

An understanding of the background of the development of government ownership of railways in Canada is essential to a study of its operation. Why has Canada drifted from the policy which Galt described in the beginning as one of private ownership?

> "In undertaking the construction of a railway system passing through Canada which should connect the Great Lakes with the ocean, the province did not propose to effect this entirely through its own resources; the Legislature only sought to offer such inducements to capitalists as might cause their attention to be directed to Canada, believing that such works as railways, the success of which is almost wholly dependent upon attention to details, were better under private management than under that of government."—A.T. Galt, *Canada, 1849 to 1859* (London, 1859).

This policy was continued in the early plans to fulfil the obligations under which British Columbia was persuaded to enter federation. "That the railway should be constructed and worked by private enterprise and not by the Dominion government." But in a country which had only recently achieved responsible government reliance on private enterprise liberally supported by the government involved continual pressure for funds and a series of dark years in the history of the Grand Trunk and in the Pacific Scandal of the Canadian Pacific Railway. On the other hand, if a recently organized government found it difficult to withstand pressure from private interests, it was scarcely less difficult to superintend the innumerable details of government construction. The problems of government construction have been indicated in the discussion of the Intercolonial Railway. They were even more obvious in the construction of sections of the Canadian Pacific Railway after 1874 by the government. Political appointments[4] and departmental red tape served to accentuate the difficulties incidental to a lack of highly-trained engineering skill in a new country. The government found it preferable to revert to the policy of construction carried out by private enterprise and liberal government support. The Canadian Pacific Railway received substantial sums of money and large areas of land and, by the judicious use of government guarantees and bonds based on lands, emerged with extremely low bonded debt and fixed charges. On this policy it survived the long years of slow traffic growth and reaped the reward in high dividend rates on rapidly expanded capital stock, especially after 1900. For the transcontinental lines built after 1900 land played only a small part in financial methods, and the dependence was necessarily on funds secured through government guarantees. Consequently, the financial structure of these lines was loaded down with fixed charges which occasioned a lack of resilience which made it impossible for the roads to survive the long period of traffic development, the sudden changes in the monetary situation brought on by the war, and by the susceptibility of lines exporting raw materials to changes in world prices.

The problem of the railroads was closely related to the problem of fiscal policy. The construction of canals in the St. Lawrence waterway was made possible by the control over revenue acquired in the Act of Union in 1840. The construction of the Grand Trunk Railway being designed to supplement the limitations of the canals in competing for traffic from the western states was dependent on a fiscal policy which provided an increase in revenue. This fiscal policy provided the necessary revenue and stimulated manufactures and traffic in the areas immediately served by the railroad. Consequently, railroad earnings were improved at the same time that provision was made for the deficit of the railroad. Construction of the Canadian Pacific Railway was carried out after 1874 at government expense and proved a heavy drain on the revenue acquired from a fiscal policy which favoured free trade. The difficulties of government ownership and a policy of free trade, especially during the depression of the seventies, was followed by a reversal of policy which included the introduction of the National Policy of 1878 and the construction of the Canadian Pacific under private ownership, assisted by government support. The Canadian Pacific was supported by such provisions as its monopoly clause and a tariff which guaranteed protection for manufactures of eastern Canada of the rapidly developing market of western Canada, and an all-the-year-round west-bound traffic. The revenue derived from these protective measures was used in part to pay the subsidies. The marked expansion which characterized Canadian development after 1900 had the effect, as has been shown, of rapidly increasing the traffic and earnings of the Canadian Pacific Railway and also the revenue of the government. Both factors contributed to the construction of two additional transcontinental lines. The prosperity of the Canadian Pacific served as a stimulus to the construction of new lines, and the accumulation of revenue made it possible for these lines to be built with government support. Substantial government support encouraged the construction of lines economically inadvisable and in a fashion not warranted by the immediate traffic possibilities. It proved easier to build new railroads, and to open new markets for protected manufactures, than to reduce the tariff. The cumulative result was failure of private ownership and the passing of the roads into the hands of the government.

Government ownership is the legitimate child of government support of private enterprise in the construction of railways in Canada. It is the result of a policy directed toward building a nation in the northern part of North America. It rests ultimately on the Precambrian shield.

The government found itself in possession of the railway lines of two transcontinental systems. The Canadian Northern had been built economically in relation to traffic possibilities. Private enterprise had on the whole served the

government well. The Grand Trunk Pacific included a long stretch of line east of Winnipeg built by the government at a high cost and with relatively slight possibilities from the standpoint of local traffic. Through this error of judgment on the part of the government and of the Grand Trunk Railway, the lines of the Grand Trunk Railway also came into possession of the government. Five separate units, the Intercolonial Railway, the Prince Edward Island Railway, the Grand Trunk, the Grand Trunk Pacific, and the Canadian Northern Railway, eventually passed into the government's control.

The majority and the minority reports of the *Royal Commission to Inquire into Railways and Transportation in Canada* strongly recommended that the railways, while owned, should not be run by the government. The majority report concluded that "for all these reasons our recommendation is that the idea of government ownership and operation be not entertained." The commissioners advised "that the three undertakings, the Canadian Northern, the Grand Trunk and the Grand Trunk Pacific, be united in one system" to "be handed over to a board of trustees to control and manage on behalf, and on account of, the people of Canada." Detailed regulations as to the character of this independent body were submitted, and stress was placed on its non-political, permanent and self-perpetuating features. This independent body was to be subject to the orders of the Railway Commission.

From these recommendations legislation followed, in which the Canadian Northern was acquired in 1919 (9-10 Geo. V, c. 13), the Grand Trunk Pacific in 1920, and finally the Grand Trunk in 1922. The system was practically unified in 1921, but it was not until the following year that Sir Henry Thornton was appointed as president, and the whole brought under one head. The history of government ownership is largely the history of the Thornton régime.

Nevertheless the period of readjustment largely carried out under D. B. Hanna[5] from 1919 to 1922 brought out the chief dangers involved in government ownership. During the post-war years the governments were maintained by narrow majorities and the dangers were particularly serious. These dangers became evident in a crucial feature of government ownership, namely, its relation to labour policy. The board became unpopular because of its attitude toward labour. Moreover, the members of the board were appointed by a political party which had been defeated at the polls. Consequently, the board resigned and a new board was appointed.

But in spite of these difficulties, material progress had been made along the lines of developing a public opinion unfavourable to political interference. Mr. Hanna, on retiring, stated that "The future success of the Canadian National Railways depends on one thing, and on one thing only. That one thing is to keep it out of politics." Sir

Henry Thornton, on assuming charge, insisted that there should be "no political influence or interference." The appointment of Sir Henry Thornton was in itself a pledge which a weak government was forced to give that there should be no political influence. Moreover, the civil service at Ottawa had been the object of reform under the Union government during the war along the lines of abolishing patronage.[6] It was one of the first acts of the president on platforms and in the press to build up a public opinion by means of his influence which would tolerate no political interference.

The immediate tasks of Sir Henry Thornton involved merging the system into a physical entity[7] and providing for the selection of competent officers. In these tasks the work performed under the previous régime provided a basis for later expansion. The three groups of roads had been brought into a comparatively smooth-working system and the roads had been supplied with badly-needed equipment and rolling stock. The officers of the old lines provided a wide range of experienced railroad men for selection. Any weakening of morale which might have been accompanied by the appointment of Sir Henry Thornton as an outside appointee was more than compensated by the efficiency attained by careful selection of officers from the large number of trained executives available.

The management has constantly stressed the engineering side of the road, and it has eliminated sections in which duplication was extensive, and welded the whole into a comprehensive system. The narrow-gauge line of the Prince Edward Island Railway has been corrected to broad gauge. The Longlac cut-off, opened for passenger traffic on January 6, 1924, made it possible to force the C.P.R. to grant an equal running schedule between Winnipeg and Toronto. A consistent policy of encouraging research in improving types of engines and in introducing such improvements as mechanical stokers[8] and in using motor engines has been followed by the road. From the standpoint of physical equipment the Canadian National Railways have endeavoured steadily to improve their position. The stress on improvement of equipment as a means of reducing expenses has been partly the result of the necessity of following liberal wage schedules for labour. The Baltimore and Ohio co-operative plan was introduced on a small scale in 1924 and gradually extended.[9] Emphasis on personnel policies has been one of the most effective methods of combatting the danger of political interference from labour. On the other hand, the generous attitude toward labour has made it more difficult for the railway to adjust its wage bills[10] to changes in traffic. It has not the flexibility which characterizes the Canadian Pacific Railway in the items of expense affected by

labour. The company is forced to concentrate on labour-saving equipment and on elaborate personnel policies intended to strengthen *esprit de corps* and increase efficiency.

Concentration on improvement of the physical character of the road involved careful attention to expansion of the system. The company inherited an excellent but heavily-capitalized section of line from Winnipeg to Quebec which passed through territory with relatively light traffic density and which was built primarily for the handling of wheat eastbound to Quebec, as well as sections of line designed to handle wheat by the Great Lakes and by Vancouver and Prince Rupert. It was essential to build up traffic along these lines and particularly in the prairie sections. Expansion in the prairie sections involved extensive branch-line construction in mixed-farming territory and to new mining areas chiefly in the northern portions of the plains area. Branch-line construction was also essential to preëmpt traffic-producing territory tributary to the Canadian National Railway and to check Canadian Pacific Railway branch lines being built to tap C.N.R. traffic.

In view of the condition of the road, it becomes obvious that one of the first requirements was capital. Since capital could be obtained only by the consent of parliament, it became necessary to convince a weak government, and a hostile Senate supported by a strong competing railroad, that a first desideratum was an addition of capital to an already overcapitalized line. The problem was illustrated in 1923 when the Senate refused to give sanction to the branch lines programme. In succeeding years the Senate continued to cut down the estimates proposed by the railroad, and it was not until 1927 that the company was able to secure the capital required from year to year. The problem has in part been solved by the support of a stronger government, but the prime consideration has been an extensive publicity campaign in which the support of public opinion has been won for a road owned and operated in the interests of the Canadian people. A perusal of the proceedings of the select standing committee on railways and shipping, which is a body set up in the House of Commons to discuss the railroad question in detail, is illuminating in showing the extent to which the president, Sir Henry Thornton, had mastered the problem of handling government bodies.[11] On the other hand, capital arrangements remain of an inflexible character and are a serious handicap in competing with a strong railway with ample revenues.

The net result of the general trend of C.N.R. policy has been that political interference in the crude sense has largely disappeared. Politics have ceased to influence the C.N.R., but the C.N.R. has begun to influence politics. The growing strength of the C.N.R.'s position has been evident in several directions, but

especially in the changes which have taken place in the Board of Railway Commissioners. The primary fact that the tariff promotes an east and west haul of Canadian products and of manufactured goods from the industrial areas of the St. Lawrence Valley to western Canada and to the Maritime Provinces, has been responsible for numerous complaints on the part of the non-industrial areas, especially during periods of depression. Western Canada has complained of higher rates levied in a monopoly territory to offset losses from lower rates in competitive territories and resulting higher charges from the tariff. Complaints from these outlying sections have become especially significant during a period of weak government; and political pressure has been evident in the case of British Columbia, the Prairie Provinces and the Maritime Provinces. The problems have in part been solved by the appointment of representatives to the Board of Railway Commissioners from the various centres of discontent. Moreover, the government has been forced to sanction arbitrary arrangements as in the case of the re-establishment of the Crow's Nest Pass Agreement[12] and the Maritime Freight Rates Act of 1927, reducing Maritime freight rates 20 per cent.—the loss being borne by the government[13]—the Canadian National West Indies service and the Canadian government merchant marine. The Hudson Bay Railway has been built at government expense to meet the demands of western Canada and may become a competitor of Canadian National eastern lines. The net result has been a more adequate control of its own financial position, but greater possibilities of interference from more indirect political influences.

An important safeguard against undue influences from outlying sections is the position of the Canadian Pacific Railroad. The starting-point of commissions and investigations has been the maintenance of the financial position of that company. The financial structure of that organization had been largely completed by 1914 and its position regarded as a measuring-stick—the earning of 7 per cent. on its common stock having been roughly indicated by the Board of Railway Commissioners.

The *Report of the Royal Commission to Inquire into Railways and Transportation in Canada, 1931-2*, has again built up its recommendations around the corner-stone of the C.P.R., and indicated the importance of strengthening its position. Rates which maintain and strengthen the position of the Canadian Pacific will not, on the other hand, begin to permit the Canadian National Railways to pay interest rates on its extensive capitalization. Plans have been suggested by which it is hoped that the financial structure will be simplified and that the capital will be arranged so that the position of the Canadian National Railways will appear more satisfactory to parliament and to the public. But the present heavy capitalization,

whether shown in the balance sheet of the government or the railway,[14] must continue to exercise an important influence and the tariff must remain an important complement to government ownership. Certainly the Canadian National Railways under government ownership has become an increasingly powerful factor in the economic development of Canada, and whatever advantages may have been obvious through government ownership in ameliorating the influences of railroads on new countries have been largely sacrificed. The Canadian National Railways represents in a crucial way a heavy mortgage on Canada's possibilities and a guarantee that Canada's economic development will not be subject to factors militating against stability and steady progress. Canada's fiscal policy will continue to be dominated by the tremendous demands for revenue. She will be concerned over a long period with ways and means of paying interest[15] on the tremendous quantities of capital borrowed in the marked period of expansion from 1900 to 1914 in which government ownership was born, and in the period after the war in which government operation came into effect.

Conclusion

In conclusion, government ownership has been shown to be the result of heavy initial capital investment involved in government construction[16] and of the attempt to build up a national unit by means of the tariff and substantial government support. *The efficiency of government ownership has steadily improved through a long period of experiment and has reached on a broad federal basis a high standard under present management.*[17] The net results of the growing strength of the railway will become increasingly evident in pressure on parliament and on the Board of Railway Commissioners by various sections of Canada attempting to shift the burden of rates and of the tariff. It may be expected that the tariff will not be subject to any material changes as a result of the heavy demands for revenue. Rates will consequently become the object of manipulation and the political interests of various sections will continue to press with increasing vigour, especially in periods of depression for further privileges in the form of arbitrary rates. Whether the debt will eventually be unloaded as a result of the rapid exploitation of virgin resources is a problem for the future. But government ownership at present represents a force in favour of continued and rapid exploitation, and there is little evidence that it is being used, or that it can be used, as a weapon designed for other purposes of importance to the Canadian people in the long run. Government ownership will continue as a most potent factor in the rapid development of the country. It would be heresy to

ask whether rapid development which involves mortgaging the resources of a young country is desirable. New countries are not in a position to ask whether capital investments are sound in the long run. They proceed in an atmosphere of boundless optimism on the assumption that there are no limits to the country's possibilities.

Additional Note

The uncertain political situation of the post-war decade, by which no adequate check could be made on government railways, and as a result of which a regional directorate was appointed to represent various areas to strengthen the position of these outlying areas, the boom period which culminated in the crash of 1929, and the large quantities of capital required to weld disjointed systems into a unit, contributed to the difficulties of both railroads and to the appointment of the Royal Commission to Inquire into Railways and Transportation in Canada in 1931. The extent to which the demands of outlying areas and especially of relatively small centres of population were met was shown in the improvement of rates and transport facilities in the Maritimes (Maritime Freight Rates Act; West Indies steamship service; widening of the gauge on Prince Edward Island and connection with the mainland by the most modern type of car ferry), on the Pacific coast, in the construction of a railway to Churchill to meet the demands of such centres as Winnipeg, Regina and Saskatoon, in the construction of stations and hotels as at Ottawa, Toronto (C.P.R.), Halifax (C.N.R. and C.P.R.), Saskatoon (C.N.R.), Regina (C.P.R.), Vancouver (C.N.R.) and Montreal (C.N.R. terminal incomplete). The importance of regional demands was recognized in the membership to the Royal Commission to report on the railroads. Representatives from the West and the Maritimes were selected along with representatives from an American and an English railway, and a justice of the supreme court as chairman. As would be expected, their recommendations favour the appointment of a powerful tribunal to enforce economies in the present railroad situation, chiefly in recognition of the dangers of sectional ambitions. Machinery has been designed to reduce the numbers of directors, to provide for the appointment of a chairman and president, and to place control in the hands of the chairman of the Board of Railway Commissioners in an arbitral tribunal. A further principle, already suggested, is to "provide reasonable protection for the privately-owned undertaking against arbitrary action by the publicly-owned undertaking, which might unfairly prejudice the interests of the privately-owned undertaking," and the warning that "the very stability of the nation's finances and the financial credit of the Canadian Pacific Railway will be threatened, with serious consequences to the people of Canada and

to those who have invested their savings in that railway." "It is recommended that a statutory duty should be imposed upon the trustees as well as upon the board of directors of the Canadian Pacific Railway that, consistent with the provisions of the existing law and with the recommendations of this report, and with the provision of all reasonable services and facilities, they should adopt as soon as practicable such co-operative measures, plans and arrangements." It is difficult to estimate the strength of the legal position of the C.P.R. in such proposed changes in powers granted in its charter, but the moral rights are probably strongly based on earlier decisions, for example, in the abolition of the monopoly clause (1888) and the Crow's Nest Pass agreement. The upper millstone is "the attainment of a scale of economies which will bring the burdens of the national system within reasonable dimensions and effectively check extravagant and costly operation."

It is difficult to avoid the conclusion that reduction of the burden of the Canadian National Railways is closely linked to the strengthening of the position of the Canadian Pacific Railway. From the standpoint of territory the Canadian Pacific has become definitely established, with the result that prospects of marked increases in traffic are not great. The Canadian National, on the other hand, has territory developed at a later date, and traffic may be expected to increase. In part, the Canadian Pacific has tapped C.N.R. territory, and it is doubtful whether any steps will be taken to check the drains occasioned by this arrangement. The possibilities of decline in railroad traffic through the revolution developed with gasoline[18] and motor transportation, and through changes following the Panama Canal, the Hudson Bay Railway and the St. Lawrence waterways, will tend to be shifted to the government railway. The Canadian National Railways will tend to become a buffer between the Canadian Pacific and the vicissitudes of railway earnings in Canada. Economies may involve heavy drains on a large portion of Canadian National territory through cuts in services and possible abandoning of lines which will bear with undue weight on frontier populations and areas. Indeed, with possible developments in new Canadian National territory, economy would be an unfortunate policy from a national point of view. Moreover, it is probably safe to say that it would be politically impossible with the result that the Canadian National would become a powerful instrument in the hands of either party. Party alignments would tend to follow the railroads. The proposal to reduce the debt of the Canadian National Railways has dangerous possibilities.

Sir Henry Thornton's contribution consisted chiefly in building up an organization largely free of political influence and in placing the Canadian National Railways definitely in the centre of the political field. Under these conditions wise political and

economic policy will frankly concede continually-recurring deficits. These deficits are an inevitable result of a geographic background in which railways are inextricably linked with waterways. In the main the deficits involved in rail and water transport have been met by revenue from the tariff and from the exploitation of virgin natural resources. The lack of resilience shown by the customs revenue suggests that virgin natural resources will tend to become less important and that steps must be taken to check the burden of deficits and the pressure on reserves and on standards of living. But in so far as virgin natural resources will tend to be registered in the position of the newer lines of the Canadian National Railways, deficits should be adjusted in rough fashion to customs revenue. It is the task of the proposed machinery to provide for a continued balance in Canadian economy not only as between private enterprise and government ownership, but also as between the centre and the outlying areas.[19]

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[1] "The Grand Trunk Company to-day is drawing from this country that we are now seeking to enter and seeking to tie up to the system a very large portion of its traffic which we stand to lose if we do not embrace this enterprise. We cannot hold it. We are to-day handling from fifteen to twenty million—last year it reached twenty-four million—bushels of grain which came across the lake from Lake Superior down to our ports feeding the whole Grand Trunk system throughout Ontario and thus contributing a very large portion of our earnings.—The Grand Trunk Railway is in this rather ridiculous position from a business standpoint of gathering up traffic from the largest and most prosperous portion of Canada, taking it to North Bay, our connection with the Canadian Pacific, and from there giving it to the Canadian Pacific to haul across the country into this prosperous and rapidly developing district we are speaking of. And what do we get back? Nothing at all. . . . Now we have another rival in that same territory (C.N.R.)."—Mr. Hays to a meeting of the Grand Trunk shareholders, March 8, 1904.

[2] "We find that without including the money which was unnecessarily expended on building the railway east of the St. Lawrence River $40,000,000 at least was needlessly expended in the building of this road." *Report of the National Transcontinental Railway Investigating Commission* (Ottawa, 1914), p. 12. "Thus the engineers

on location were given instructions which allowed them a latitude equal to about $20,000 for each and every mile which instructions were concurred in by the Grand Trunk Pacific Railway Company. . . . We are unable without detail surveys to say how much money was expended in consequence of these instructions but the effect of such latitude was enough to induce them to locate as near straight and level as possible regardless of cost." Ibid., p. 16, see passim. The grade eastbound was kept down to 4 per cent.

[3] *Report of the Royal Commission to Inquire into Railways and Transportation in Canada* (Ottawa, 1917), App. A, p. 58, also H. A. Lovett, *Canada and the Grand Trunk, 1829-1924* (Montreal, 1924).

[4] H. A. Innis, *A History of the Canadian Pacific Railway* (London, 1923), Ch. 11.

[5] See D. B. Hanna, *Trains of Recollection* (Toronto, 1924).

[6] R. M. Dawson, *The Civil Service in Canada* (Oxford, 1929).

[7] "When these railways were built to compete one with the other, we found a duplication of facilities and in other cases facilities which were badly arranged for consolidating purposes. . . . The railways as we took them over were like an orchestra with each instrument playing its own tune independently of the others; and we are trying to get harmony out of the whole. . . . We were handed a very discordant number of parts, a railway which was insufficient in many ways in its railways and traffic. All that involved a good deal of money to put the railway into an efficient position."—Sir Henry Thornton, before the Select Standing Committee of the House of Commons, in 1929.

[8] Pounds of coal per 1,000 gross miles:

	1923	1931
C.N.R.	146.0	117.0
C.P.R.	130.0	113.8

Percentage of locomotive fuel to operating expenses:

	1923	1931
C.N.R.	13.12	8.55
C.P.R.	12.09	8.69

[9] See L. A. Wood, *Union Management Co-operation on the Railroads* (New Haven, 1931); Alexander Stark, *Industrial Democracy in Canada*, Master's thesis, University of Toronto Library.

[10] Wages were responsible for an increase in expenses of $4,500,000 in 1927. It should be noted on the other hand that the wage item of both railways has been relatively inelastic as a result of their relation to American schedules.

[11] Further difficulties involved in this procedure became evident in 1931. The report of the Royal Commission stated that "in the interests of discipline and to prevent prejudice to the relations that should prevail between trustees and the staff it is earnestly recommended by the Commission that the officials of the company in charge of operations should not be asked to appear for examination."

[12] See T. H. Harris, *Economic Aspects of the Crow's Nest Pass Rates Agreement*, McGill University Economic Studies, No. 15.

[13] The estimated deficit resulting under the Maritime Freight Rates Act was $6,586,645, on the Canadian National West Indies service $945,000, on the Canadian government merchant marine $969,000 in 1929.

[14] W. W. Swanson, *Depression and the Way Out* (Toronto, 1931), ch. xi.

[15] Net earnings have improved from fifteen million in 1922 to fifty-eight million in 1928.

[16] Even in the case of construction of the government sections of the C.P.R. it was held that capital expenditure was unduly high.

[17] See L. T. Fournier, "The Canadian National Railway versus the Canadian Pacific: A Comparative Study," *Journal of Political Economy*, June, 1931, 369-389.

[18] "Competition from other forms of transport, notably road transport," is listed as a principal contributory cause of the transportation problem. Road development also reflects the ambitions of small metropolitan centres, but the outlay has been in this instance a burden of the provinces. Provincial railways may be listed under the same head. The Edmonton, Dunvegan and B.C. Railway and the Alberta Great Waterways were shifted by the province of Alberta to the Canadian Pacific and the Canadian National. The Pacific Great Eastern has

remained a burden to the government. The T.N.O. has remained under the ownership of the Ontario government. In the case of motor transportation, little can be expected from conferences in which the Dominion hopes to check this competition since it tends to involve a shift of burden to the provinces.

[19] See H. A. Innis, "Economic Planning by Arbitration," *Canadian Forum*, December, 1932, also "The Rise and Decline of Toronto," ibid., April, 1933.

B. Provincial Railways[1]

[1] On this subject I have had the advantage of frequent consultations with Professor R. MacQueen of the University of Saskatchewan, who has been engaged in a study of provincial lines with special reference to the province of Alberta.

1. Temiskaming and Northern Ontario Railway

Railroads built and operated by provinces have on the whole been less favourably situated than railroads built and operated by the Dominion. In the main they involve the construction of relatively short stretches of line and are handicapped in the beginning as being unprofitable, since otherwise private enterprise in the form of small corporations or of the large railroad companies would have undertaken to construct or acquire them. Short government lines are not in a position to bargain with through lines for traffic rights and privileges. Moreover, the provinces have been limited in their sources of revenue, especially with the numerous developments requiring large expenditure and in their organization for handling government enterprises. Generally they have been more anxious to give generous assistance to railways under private ownership than to assume the task of administering government-owned roads. Private enterprise has not been slow to avail itself of this situation. Finally, the traffic possibilities for short stretches of line such as are built by the provinces are limited. In most cases provincially-owned and operated roads have come under the control of the two main Canadian lines through lease, sale, or other agreements.

The outstanding example of a railway which has not come under the control of the transcontinental lines, but is owned and operated by the province, has been the

Temiskaming and Northern Ontario Railway. Its construction and operation may be contrasted with the Intercolonial Railway under federal jurisdiction. While the Intercolonial Railway was designed to unite the Maritime Provinces with the St. Lawrence Valley, the Temiskaming and Northern Ontario Railway was designed to open up the stretch of country north of the railroad territory in what had become known as the Clay Belt. In the long competitive struggle between the metropolitan areas of Toronto and Montreal, the former had determined on measures for protecting her position. In spite of the guarantees she had acquired of equal treatment with Montreal in the original charter of the Canadian Pacific Railway, she continued in a weak competitive position. With the turn of the century Toronto became more actively engaged in attempts to increase control over new areas and to acquire a large share of the trade of older areas. In 1901 a survey party was sent north of North Bay to locate a route to Lake Temiskaming (about 110 miles). In 1902 an Act was passed providing for the appointment of a board of from three to five commissioners to construct and operate the road. It was provided that not over 20,000 acres of land per mile should be set apart to finance the road, on which debentures could be issued bearing a rate not over 3½ per cent. and maturing in forty years. The principal and interest of the debentures were guaranteed, and a sinking fund was maintained by the province. In the following year an amendment limited the issue of debentures to $25,000 per mile, raised the rate to 4 per cent. and provided that timber and mineral rights should not be included in the land grant. The route was finally selected in 1902, chiefly to provide easy southbound grades for heavy traffic expected to move in that direction. Construction was carried on by contract. By 1905 the first section was completed to Mile 105. Meanwhile the proposed construction of the Grand Trunk Pacific by the Dominion government led to the adoption of new plans for an extension of the line and to the passing of an amendment to that effect in 1904. In 1908 the line was completed to Cochrane, and the road was able to share more extensively in the traffic occasioned by the construction of the National Transcontinental. As in the early agreement with the C.P.R., Toronto favoured the extension of the T.N.O. to secure her share of traffic from the West along the N.T.R.

As in the case of the Intercolonial, the best workmanship and the best material were regarded as essential in the construction of the road. It became necessary to raise the debenture limit to $30,000 a mile. The difficulties involved in raising money on the debentures led in 1905 to the general policy of placing the financing of the railroad directly in relation to the Consolidated Revenue Fund, and the road was thereafter financed directly with provincial funds. Extensions have been financed by

the government, and the provincial loan account has increased from $7,636,164 in 1905 to $15,338,338 in 1909, to $19,696,451 in 1913 and to $30,207,934 in 1925. In Ontario, as in the Dominion, the capital account of the railroad tends to be larger than would have been the case under private ownership. The roadbed has been substantially laid down and all-steel equipment has been used on the line. This programme has been justified in lower operating costs and has been required by the agreement with the C.N.R. for handling through traffic. A subsidy from the Dominion government of $6,400 per mile has been of assistance in meeting the costs. Capital account has been closely related to the exigencies of the provincial government's financial position and has been influenced to some extent by the requirements of political expediency.

If capital expenditures have been increased, chiefly from the standpoint of developing a new territory, rates have been even more closely adjusted to that requirement. Low rates were charged locally and special rates were given settlers' effects and pulpwood exports. Mining, lumbering and agriculture were encouraged by the development policy. Even after the effects of the development policy were evident, rates continued at a low level because of the difficulties involved in raising rates on a government line. The movement of bulky raw materials has been encouraged, with the result that revenue has suffered and expenses have been increased. High-grade traffic imported into the country was not able to compensate for the loss of revenue. A result of these measures, which were inherent to the character of the road, was the marked development of the territory served. The discovery of silver in 1903 at Cobalt was followed by rapid development. In 1909 gold was discovered in the Porcupine district and train service opened to that district on July 1, 1911. The Kirkland Lake mines followed in 1912. The Abitibi Pulp and Paper Company began operations at Iroquois Falls in 1915. Rouyn was discovered and connections established through the Nipissing Central in 1928. Power plants were developed to accompany the production of minerals and pulp and paper. Plants were established at Cobalt in 1910 and later years, and in the Porcupine district in 1912 and later. Feeders have been built from Cobalt to South Lorrain, Earlton to Elk Lake, Swastika to Kirkland Lake and Rouyn, and from Porquis Jct. to Iroquois Falls and to Timmins. Finally, an extension has been built north from Cochrane to Moosonee on James Bay in 1932. Traffic has fluctuated as a result of these various developments and following changes in the process of milling ores, in the extent of the use of water power, and in the rise and fall in importance of ore bodies. Loaded car mileage north bound increased to 1911, declined in 1912, but rose to 1914, declined in 1915, increased rapidly to 1917 and fell off to 1919.

Southbound traffic increased to 1916, with the exception of 1909, but fluctuated violently to 1919. Prior to 1917 northbound traffic exceeded southbound traffic, and only in 1918 and 1919 were the original plans of the company in providing for heavy southbound traffic realized. Fluctuations in revenue were closely related to fluctuations in northbound traffic prior to 1917, and after that date revenue moved more closely with southbound traffic. Passenger revenue increased steadily from 1905 to 1911, with the exception of a decline in 1908. It declined to 1915 and increased to 1921, with the exception of 1918. The slight decline in 1922 was followed by a rise to 1924, but on the whole the tendency was toward stability. The cost of handling the traffic was evident in the expense items. Transportation expense increased rapidly from 1907 to 1913, with the exception of 1908, but declined to 1915. It increased rapidly during the war years to 1921, fluctuating after that date but tending to decline. Maintenance of equipment increased from 1907 to 1912, declined in 1913 but rose rapidly in 1914. The following two years saw a decline but were rapidly followed by an increase to 1920, a decline to 1922 and an increase in 1923, but on the whole a decline after that date. Maintenance of way rose to 1910, declined to 1912, rose in 1913 and fell off in 1914, to be followed by a steady rise to 1921. A decline in 1922 was followed by a rise to 1924 and a period of relative stability after that date. As a result of these items and other smaller items, including traffic, general and miscellaneous expenses, the total rose steadily to 1913, declined to 1915 and increased to 1921. From that date they fluctuated, and in the later period tended to reach a point of stability. Net returns from operations fluctuated materially throughout the history of the road. From 1905 to 1909 they increased from $113,948 to $655,871, declined to $436,130 in 1910 and rose to $593,152 in 1911. From that level they were more than cut in half by 1913, and after a brief recovery reached an even lower level in 1915. In 1916 they advanced to $528,705 and declined gradually to 1918, falling to $53,153 in 1919. The low years of 1920 and 1921 have been followed by the most prosperous years of the company's history, reaching $1,211,580 in 1927. The amounts paid to the government have fluctuated throughout the period, rising from $100,000 in 1905 to $550,000 in 1909, declining to $420,000 in 1910, and increasing to $515,000 and $510,000 in 1911 and 1912. The decline in revenue from 1913 to 1915 was responsible for a decline in the amount paid to $250,000 and $300,000 in 1918, and nothing was paid in 1919. In 1920 and 1921 $100,000 and $200,000 were paid respectively, but after that date the amounts were increased to $600,000, $750,000, and in 1927 totalled $1,300,000. Profit and loss account has increased steadily to 1915, but reached a low level of $14,303 in 1916. After 1918 and 1919 it has remained at a

level of about $600,000.

As contrasted with railroad operation in private hands, certain general conclusions emerge. A relatively heavy investment of capital in roadbed and equipment is accompanied in the beginning and throughout by low rates for development purposes. After a period of operation with relatively low and fluctuating operating returns, the road eventually arrived at a fairly prosperous and stable period —for example, in the years after 1922. The finances of the government are subject to a steady increase in capital account and in interest charges on behalf of the railroad until a period of relative stability is reached, for example, after 1924. These charges are partly met by rapidly fluctuating payments until a period of stability is reached. From the standpoint of provincial finance, the government has been obliged to invest heavy sums in the hope that these sums will be returned through increased revenue not from the railroad but from other sources. General revenue must be increased from business arising out of the success of the railroad to offset the direct expenditure incidental to railroad operation. Devices must be adopted to favour the immediate development of traffic in raw materials in order that the business thereon may expand with such rapidity as to increase revenue and therefore not imperil the immediate financial position of the government. The government must also take measures to provide for a retention of the business within the province, which is thereby developed, and to bring the returns for the raw materials as far as possible into the hands of residents of the province. The task can be accomplished most easily by favouring the growth of the metropolitan centre, in this case, Toronto. On the other hand, the drain of business to the metropolitan area is at the expense of the territory served by the railroad. The railroad becomes, as a result, a measure for pacifying the population and is of essential value as a political weapon. Railroad extensions, low rates and service are offered directly and may help to conceal costs incidental to rapid development of mining and pulp and paper areas.

The T.N.O. railroad has been developed as one of the means of extending Toronto's metropolitan influence. There can be no doubt that as such it has been a success. On the other hand, in so far as it has furthered metropolitan ambitions and given the metropolitan area a closer relationship to the province, it has made more decisive the unfortunate tendency by which the provinces have tended to gain at the expense of the Dominion. The railroad is a weapon by which the metropolitan area has been able to overcome the handicaps of geography and to undertake risks at low rates which private enterprise could not assume. It afforded a means by which various organizations could overtake technical expansion.

An indirect effect of the "cashing-in" on virgin natural resources by the

introduction of the new industrial technique with government support has been an indeterminate relationship between government expenditures and government revenue. Expenditures made on the assumption that revenue will return from various directions has been responsible for the incurable and dangerous optimism which characterizes government effort. On the whole, public enterprises to which the government contributes have introduced an element of uncertainty in the financial position of the government and a degree of unwholesome inelasticity. As in the case of the Intercolonial, a railroad serving a comparatively restricted area is subject to pressure from the government and the government supporters. Moreover, a railroad which is closely related to the government from the standpoint of finance is not able to develop a healthy independence. It is a weapon directly under the control of the government to hasten the rapid exploitation of new territory and to enable it to gain a more substantial share of traffic arising from the construction of federal lines, and cannot pretend to be free from political influences. The extension from Cochrane to Moosonee[1] is intended to enable the province to share in the developments on Hudson Bay. As in the case of the federal lines, the railway has been designed to foster rapid exploitation of natural resources. The costs of rapid exploitation in terms of exhaustion of mines and pulpwood resources have not been considered from the long-run point of view. There can be no doubt as to the effectiveness with which it has fulfilled its purpose from the short-run point of view.

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[1] This extension (186 miles) was opened in 1932. It has been responsible for the development of traffic, particularly pulpwood for paper mills at Iroquois Falls, especially in the territory between Cochrane and Mile 43. Moreover, the power plants near the latter point and at Abitibi canyon (Mile 69) were dependent on the railroad. The lignite fields near Onakawana (Mile 142) are being thoroughly investigated with a view to utilization in a large tributary territory in which costs of transport for coal are high. The line is directly concerned in supplying goods for the fur trade and in developing a possible tourist trade. Accessibility to the east coast of James Bay and Hudson Bay will facilitate exploration for minerals in the Labrador Ungava area of Northern Quebec. The shallow character of the bay in the vicinity of the terminus precludes low cost and efficient handling of bulk traffic in James Bay. Smaller steamers may link up Moosonee with other parts of the bay. In any case the line may be regarded as a feeder to the main line from North Bay to Cochrane (253

miles) and its traffic development as a possible device for reducing overhead costs on this long stretch. Traffic originating or destined for this new territory is obliged in the main to be hauled over the whole main line.

2. Pacific Great Eastern Railway

The Pacific Great Eastern Railway, running from Squamish on Howe Sound, near Vancouver, to Quesnel on the Fraser River, is a second line owned by provincial governments, namely, British Columbia. It was planned to develop local traffic and to provide a link from Vancouver to Peace River. Originally it was undertaken by contractors, but as a result of high prices during the war, ownership and construction were assumed by the government in 1918. High costs of construction and annual deficits placed a heavy burden on provincial finance. In 1922 a special report recommended the abandonment of the line from Squamish to Clinton, and linking up with the Canadian Northern Railway by a short line from Clinton to Ashcroft. It was stated that there was "no prospect that traffic can be created—for many years to come—sufficient to provide for the heavy fixed charges resulting from the construction and operation of this railway line." To the end of 1929 the railroad had cost the province $61,458,034. On January 1, 1928, the road involved

Liabilities	$22,593,393	
Carrying charges paid out of treasury	9,881,030	
Charges for all purposes	20,325,140	
	$52,799,564	$33,099,020 owed to public 19,700,544 owed to province

High costs of construction, necessitated by the topographical character of the country and by the "splendid physical condition of the road," high costs of operation and maintenance and large stretches of non-revenue-producing territory have brought serious financial problems which apparently can only be solved by placing the road under the control of transcontinental railways, and by extension to Fort George and possibly Peace River. On the other hand, the late Premier Oliver stated, "It is political sagacity, it may not be good engineering, to develop that country and not give up the road."

The Pacific Great Eastern represents one of the efforts of British Columbia in its struggle with topography.

C. Telephones

The effects of the rapid development of Canada which followed the construction of railways with government support were especially evident in Western Canada or in the Prairie Provinces. Traffic developed from this area was expected to support the heavy overhead costs characteristic of transcontinental lines, especially through long stretches which provided little traffic and which involved heavy costs of construction, maintenance and operation. Rapid development of traffic depended on wheat production, which in turn depended on the growth of settlement over wide areas. The network of branch lines feeding the main lines, characteristic of a railway map of the Prairie Provinces, is an indication of the effects of wheat production on settlement. In the main, production depended on a highly-intelligent population capable of utilizing machinery on a large scale—a population accustomed to a comparatively high standard of living.

An understanding of this background is essential to a study of the various movements which have characterized the Canadian West and especially the phenomenon of government ownership of telephones. A widely-scattered, highly-intelligent population demanded immediately the installation of telephones on a large scale. Private enterprise in the telephone industry, accustomed to the demands chiefly of industrial areas, proved inadequate to the demands of a rural area requiring immediate expansion. It is proposed to study carefully the growth of the system which has been given the closest attention by students of government ownership,[1] namely, Manitoba, and to discuss briefly the later developments in Saskatchewan and Alberta from that background. The telephone in Canada was considered from the standpoint of government ownership under federal jurisdiction by a Select Committee of the House of Commons in 1905, but its development has been limited to municipalities and the provinces.

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[1] See J. Mavor, *Government Telephones, the Experience of Manitoba, Canada* (New York, 1916). This volume emphasizes the initial difficulties of installing the system.

1. Manitoba

In 1899 power was given municipalities in Manitoba to own and operate local telephone exchanges (62-63 Vic., 1899, c. 25) in response to a request from the municipality of Neepawa. The municipal exchanges established under the Act were

not entitled to connection with long-distance telephones under private control, and in 1905 the government of the province decided to embark on an extensive policy of government ownership, in which a telephone system was "to be owned and controlled by the municipalities and the government jointly." The local exchange service was to be operated by the municipalities, and the long-distance lines by the government, and a bill was passed in 1906 (5-6 Edw. VII, 1906, c. 89). The difficulty of securing a sufficiently large number of municipalities to undertake the construction of exchanges made it necessary for the government to go beyond the construction of long-distance lines, and in 1907 the Bell Telephone System in Manitoba was purchased for $3,300,000. On January 15, 1908, a commission of three members, subject to the Cabinet, was appointed to operate the system. In June, 1908, the Minister of Telephones transferred the power of purchasing supplies to the Commission and the system began with an indebtedness of about $4,000,000.

The operation of the system under the control of the Commission to 1912 illustrated most of the difficulties of inaugurating government ownership in an industry requiring a large, highly-technical staff. Although the government was able to rely in part on the experience of competent telephone men, it did not have access to the highly-trained skill of a large system such as the Bell Telephone. The division of powers between the Commission and the government was unsatisfactory, with the result that purchases, rates and accounts were too closely connected with the political exigencies of the government. Rapid expansion of lines in rural areas greatly enhanced the possibilities of political pressure. Failure to keep the accounts separate from the general accounts of the government, and to make adequate depreciation allowances, made it impossible for the Commission to work out an adequate system of control. A marked increase in capital investment, required by a doubling of the number of telephones in three years, made it impossible to conceal a deficit after three years in the depreciation accounts, with the result that a commission for investigation was appointed and the Commissioners resigned in 1912.

As a result of the investigation, a provincial Public Utilities Commission was appointed, and this commission in turn appointed an independent commission to operate the system. The setting up of this buffer between the telephone system and the government made it possible to raise the rates in 1912 and to avoid political pressure in the matter of purchases and in other details. But even this improved machinery was unequal to the strain of rapid expansion and difficulties with the accounts continued. In 1914 the system included 46,000 telephones, and in 1916 it was estimated that Winnipeg had 11.1 telephones per hundred population and the remainder of the province 8.2, giving an average for the province of 9.7.

During the war period it was necessary to restrict expansion and to follow a rigid system of economy. The possession of a number of non-paying lines in the rural areas was a result of the expansion. The commissioner reported in 1916 that "At the present time we would consider any such values to be dispelled by reason of unprofitable lines built since the purchase, more particularly the farm lines, although the gain to the province at large due to this class of work is undoubtedly of far more value than the loss to the telephone system," and in 1917 that "the telephone system has been extended where it would never have been under private ownership. It has provided telephone communication in many localities where the service was not immediately remunerative in revenue but where its existence has saved countless dollars to the people of the province. The telephone system is now thoroughly established as a provincial asset and is looked upon by financiers as an established security. The published figures dealing with the operation of this government-owned telephone system of the province show that large savings are being effected in the interests of the people of Manitoba which would otherwise be divided as dividends of a private corporation." The accumulated deficit in 1921 was $884,805, and at that date the province was in possession of 65,552 telephones, of which 14,955 were rural telephones. During the post-war period the system has been improved by the substitution of automatic exchanges, beginning in Brandon in 1917 and completing in Winnipeg in 1926. On November 30, 1928, the province had 73,836 telephones and the system had materially improved its position in providing a surplus of $306,555.

On the whole, the main problems of developing government ownership appear to have been solved. The cost of the trying experiments connected with its development is difficult to estimate. The dangers of the system were shown in the heavy debts to which the province was directly committed and in the political necessity of surpluses between the period of heavy commitments and later returns. The advantages of government ownership were shown in the immediate possibility of commanding tremendous capital resources at a comparatively low rate of interest and placing at the command of the community in the shortest possible time the conveniences of modern civilization which involve heavy capital investments. The savings involved in immediate rapid expansion of these conveniences and consequent reduction of overhead costs can be measured only with difficulty against the relatively slow and the more selective development characteristic of private enterprise with more continuous dividends. Nor can the payment of interest on funds necessary to finance an enterprise owned by the government be measured against the payment of dividends on funds necessary to finance an enterprise owned by a

private corporation. Undoubtedly there was a sense of satisfaction in being able to thwart the possibilities of exploitation from outside on the part of a population which had protested against eastern monopoly control since the construction of the first railway. The question as to how far the government is justified in shouldering a debt for the sake of a small proportion of its population which owns telephones can only be answered in terms of the intangible advantages to be gained by the immediate increase in use of the telephone, especially to the scattered population of the rural areas. It is difficult to estimate the advantages or disadvantages of a rapid increase in the use of telephones. In the main, government ownership of telephones in western Canada has been the result of the difficulty of private ownership in meeting the demands of a new situation. Holcombe, in his work on *The Public Ownership of Telephones on the Continent of Europe* (Boston and New York, 1911), writes that "the great merit of public ownership therefore as an agent of production is that under proper industrial conditions it fulfils more economically than any other method of industrial organization the direct purpose of production—that is, the supply of the consumer with the kind and quantity of goods that he desires." It would be difficult to say whether it fulfilled the direct purpose of production more economically, but it is not difficult to say that it fulfilled it more quickly and that it *did* fulfil it in the case of the telephones of Manitoba.

2. Saskatchewan

The development of government ownership in Saskatchewan parallels that of Manitoba in many respects. The differences are largely the result of a later development in Saskatchewan in which the province was able to take advantage of the experience of other provinces and of a more recent, more rapid and more typically rural development than Manitoba. A Telephone Act was passed in 1908, along similar lines to the Act of 1906 in Manitoba, providing for the construction of long-distance lines by the province to serve local exchanges owned by the municipalities. In 1909 the government bought out the Bell Telephone System and two smaller organizations. The merging of these systems was followed by a period of rapid expansion. The department found it necessary as in Manitoba to extend its activities to include along with long-distance lines the exchanges in towns which served as terminal points.

With the investment of capital in long-distance lines and exchanges, the government found, as in Manitoba, that municipal systems were being organized at too slow a rate. The small companies found it difficult to finance telephone systems

because of the hesitancy of financial houses to accept rural telephone debentures. In 1913 a new act was accordingly introduced and designed to standardize the character of these debentures and increase their acceptability. The government arranged to sell the telephone poles to the rural companies and to inspect the lines before they were attached to the long-distance lines. Five persons could form a company. Shareholders were expected to purchase shares at $5 each—no person being allowed to hold more than four shares. The capital was not to exceed a maximum of $10 per mile, of which $5 was to be collected. The company thus organized was allowed to float debentures to a maximum of $350 per mile, running for a period not over fifteen years and paying not more than 8 per cent. The funds for paying the debentures were to be raised by a tax on lands lying along the system —an admirable method of forcing the absentee landholder to pay his share of the burden. Under this Act rural telephones increased rapidly in spite of the high costs, especially in wages, of the war period, and later a restriction on the issue of debentures as a war measure. It was estimated that, by 1919, 70,000 telephones had been installed in the province, or a ratio of about one to every ten of population. Since that date, growth has been at a relatively slower rate. The problems of expansion have been much less acute than in the case of Manitoba because of the more extensive dependence on small rural systems. These systems were financed independently, and the traffic developed helped to carry the cost of the long-distance lines operated by the government. Prices realized in Saskatchewan for their staple wheat crop during the war period were important in financing the rural extensions. Government ownership again served as a means of bridging the difficult financial period of rapid expansion in a highly-technical convenience involving heavy initial capital and overhead costs.

3. Alberta

The Province of Alberta was the first province in Canada to undertake government ownership of telephones. At the meeting of the first legislature (1905) following the creation of the province, the government passed a vote of $25,000 to construct long-distance lines, and as a supplement passed an act to empower municipalities to construct and operate lines. Construction of long-distance lines began immediately, and competition with the Bell Telephone System was followed by the purchase of that system in 1908 for $675,000. The expansion of the system continued along similar lines to that in Saskatchewan. The system suffered from severe fluctuations in the post-war period, but in 1928 the province was able to

report an ownership of 60,222 telephones, of which 21,269 were owned by rural subscribers. The system involved an investment of $23,281,804, and in that year a surplus of $207,382 was earned.

D. Ontario Hydro-Electric Commission

The control of water powers has been placed by the British North America Act, and later decisions of the Privy Council, under the provinces. Consequently, the development of government ownership in relation to hydro-electric power has been undertaken by the provinces. As in the case of the telephones, the development of Government ownership by the provinces necessitates a reliance on municipalities. The provinces are more closely restricted in their revenue, depending in part on the relatively inelastic subsidy from the Dominion government and on other sources which may be developed of an elastic or inelastic character. The dangers of embarking on government ownership which involved heavy investment of capital are, consequently, of a serious character in so far as the credit of the provinces are concerned and are generally diminished by relying on the financial resources of the municipalities.

But the effects of the federal tariff have been shown in the rapid expansion in construction of transcontinental railroads, in the opening of new territory for the marketing of manufactured products, and in the encouragement of western movement of manufactured products from the older industrial centres of eastern Canada. The task of meeting the rapid increase in demand for telephones in the rural areas of the western provinces was similar to the task of meeting the rapid increase in demand for manufactures. The dependence of the industrial areas of Ontario on supplies of coal from the United States was partly responsible for a search for new sources of power, but of paramount importance was the demand for a cheaper source of power. The Province of Ontario, which felt most directly the effects of western demands, was called upon to finance the rapid increase involved in the capital necessary to bridge the gap between a relatively weak industrial status and the acquisition of the most advanced industrial technique. The geological background accentuated this demand since the concentration of power in one locality at Niagara Falls, and the consequent necessity for heavy outlay in installing plant and transmission lines, required the immediate investment of enormous sums of capital. A new source of power, located without reference to the earlier development of industrial centres based on coal, was adapted to the demands of those centres.

The growth of the larger centres, especially Toronto, and the demand on the part

of the municipality for cheaper means of securing light and power, strengthened the position of manufacturers in the early agitation for the development of Niagara power. The city council of Toronto recommended, as early as 1894,[1] that a civic electric-light plant should be installed. After the consideration of various proposals after that date, a committee of the council of the Toronto Board of Trade reported on April 15, 1900, on the possibility of receiving electrical energy from Niagara Falls. This report and other reports along the same lines were followed by definite proposals for securing power. In 1901 Mayor A.O. Howland called together a convention of municipalities, and the Union of Canadian Municipalities was formed. As a result of further agitation, led chiefly by the city of Toronto and supported by municipalities in western Ontario and by manufacturers, an Act was passed on June 12, 1903 (3 Edw. VII, c. 25), "to provide for the construction of municipal power works and the transmission, distribution and supply of electrical and other power and energy." Under this Act the Ontario Power Commission was appointed to investigate the cost and possibilities of power development. This Commission was replaced by a second body, with more extensive powers, after the election of 1905. Both Commissions reported in favour of the purchase and distribution of hydro-electric power by municipalities. In 1906 an Act (6 Edw. VII, c. 15), "to provide for the transmission of electrical power to municipalities," arranged for the appointment of the Hydro-Electric Power Commission of Ontario. By-laws were passed by various municipalities in favour of contracts for electrical power, and the Commission strongly supported by new acts[2] increasing its power, entered into negotiations for the purchase and distribution of electrical power. A contract was made with the Ontario Power Company, and transmission lines were built to various municipalities, each bearing a proportionate share of the cost. This cost includes four per cent. on the cost of construction, operating and maintenance charges, and an annual amount sufficient to create a sinking fund which in thirty years shall completely pay for that portion of the construction cost applicable to each municipality. The final consumer pays the charge made against the municipality, plus the local municipal charges. In 1911 the Commission and the municipalities adopted base schedules for charges on residence lighting, commercial lighting and flat rates. Operations were extended from municipalities served by Niagara power to other municipalities, and contracts similar to those with the Ontario Power Company have been made with other companies in control of other power sites.

The powers of the Commission have been extended from transmission lines to power plants. In 1917 the property of the Ontario Power Company, with which the Hydro Commission had a large contract, was purchased for $22,669,000. Since

that date the plant has been extended and developed along with the Queenston-Chippawa project begun in 1917. The demand for power has necessitated constant additions in the form of plant and transmission lines. In 1929 investments totalled $315,000,000. The Commission included 608 partner municipalities.

The net results of the Ontario Hydro-Electric Commission are difficult to estimate. Comparisons[3] as to costs of power between New York State and Ontario are of questionable value, but they point toward lower costs for Ontario. The dangers of over-expansion have been avoided through a strong, healthy criticism and effective checks in the form of commissions of investigation appointed by the government. The Clarkson Commission into Hydro accounts, the Sutherland Commission which reported against the extension of radials by the Hydro Commission, and the Gregory Commission which investigated Hydro affairs in general, had salutary effects.[4] Beyond question the organization has been responsible for a rapid increase in the utilization of water power and in the industrialization of the Province of Ontario. Government ownership has been successful partly as a result of its requirements for a large body of highly-technical skill. Moreover, the tremendous sums of capital involved have enabled the Commission to command most efficient managerial and directional ability. These have in turn guaranteed freedom from government interference, but they have, as in the case of the C.N.R., necessitated the interference of the Commission with the government. The effectiveness which is based on low interest-bearing capital, tremendous cheap power resources, highly-technical skill, the advantages of being able to work out a long-run programme from the point of view of the province, and enormous overhead charges, have been responsible for a steady retreat of private enterprise, especially in municipal undertakings, as with the Toronto Street Railway Company and the Toronto Electric Light Company.[5] The steady growth of the Commission has had its influence on labour and government policy, and it is quite probable that this influence will become increasingly powerful. The Commission through its power over rates has been able constantly to increase consumption and in turn to increase production. How far the policy can be continued depends on more effective utilization of power and on the development of new power sites. Certainly it has proved a most efficient weapon in building up the industrial areas of Ontario.

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[1] See L. G. Denis and A. V. White, *Water-powers of Canada* (Ottawa, 1911), pp. 35 ff. and especially the bibliography, pp. 349 ff.

[2] 7 Edw. VII, c. 19; 8 Edw. VII, c. 22; 9 Edw. VII, c. 19; 10 Edw. VII, c. 16; 1 Geo. V, c. 14; 1 Geo. V, c. 15.

[3] See H. W. Peck, "An Inductive Study of Publicly-Owned and -Operated versus Privately-Owned but Regulated Electric Utilities," *Papers and Proceedings of the American Economic Association*, March, 1929, pp. 197-218, and Mosher and Associates, *Electrical Utilities the Crisis in Public Control* (New York and London, 1929), ch. ix, "the publicly-owned and operated Ontario system is more efficient than the large New York private companies in rendering service to the public primarily because of their social policy, a policy of super-power for service, with service at cost, and the amortization of capital account. In line with this policy, by means of large scale planning and control, they have built up a symmetrical industrial organization and have thus avoided the expense of parasitic, profit-taking organizations that levy charges in excess of services to the industry. Also (perhaps because of the service motive) they have followed a more enlightened sales policy and this has enabled them to make rates for lighting much lower than those charged in New York." H. W. Peck, op. cit., p. 212.

[4] For a severely critical work see James Mavor, *Niagara in Politics* (New York, 1925), and S. S. Wyer, *Salient Findings of Royal Commission Appointed to Investigate Governmentally-Owned Hydro-Electric Systems in Ontario, Canada* (Columbus, 1925).

[5] See E. B. Biggar, *Hydro-Electric Development in Ontario* (Toronto, 1920), especially ch. xi.

Summary

Government ownership in Canada has been confined in its most extensive development to the period after 1900, but its roots extend back through the preceding half-century. It has been largely confined in the provinces and municipalities to those areas which have been subject to extremely rapid economic expansion, namely, Ontario and the western provinces. The rapidity of the expansion has been a cause and a result of the growth of government ownership. In both areas government ownership expanded in relation to developments which required heavy initial outlays of capital for the installation of equipment to serve a large number of consumers.

The limitations of the provinces in their ability to acquire revenue placed very definite restrictions on methods of acquiring vast sums of capital essential to the installation of the necessary equipment. Capital obtained directly by the provincial government placed a heavy burden on resources, and it has been found advisable to draw upon the municipalities for additional assistance. This arrangement not only strengthens the financial position of government ownership but it also guarantees substantial popular support. Moreover, it necessitates an efficient accounting system and an efficient management, and serves to check the dangers of political patronage. Failure to appreciate the value of this arrangement was partly responsible for the early difficulties of the Manitoba telephone system.

The defects of the arrangement become obvious in an analysis of the engineering phases of the system. For example, from the standpoint of efficient electrical development, transmission lines[1] involve substantial additional costs, and electrical power could be employed at greater advantage in areas adjacent to the source of power. These costs are difficult to allocate. Complaints arise from various municipalities charging discrimination, pressure may be exercised on municipalities to enter contracts to reduce costs, and in the case of the telephones of Manitoba certain rural lines have been admittedly carried at a loss. In the rural areas of Ontario hydro-electric power is subsidized to the extent that the government pays one-half the cost of transmission lines. But the losses which may be ascribed to the attempt to fit new sources of power to an older political system and to an older industrial system are offset by certain definite gains. Losses involved in inefficient operation must be weighed against possible losses involved in depreciation through obsolescence provided efficient operation were put into effect. The loss which would follow the decline of industrial areas in western Ontario with the concentration of industry in the Niagara Peninsula offsets the loss incidental to inefficient operation of areas widely scattered from the source of power. Government ownership provides an effective method of tempering the more recent advances of the industrial revolution to a thinly-populated, relatively non-industrial area. Moreover, it places control in the hands of the political unit concerned.

The advantages of control by a large organization include the advantages generally attributed to such organization—possibilities of planning a long-run programme with reference to a large area, ability to command efficient management and technical skill, and numerous economies. Government ownership of this organization insures a supply of capital funds at a fairly low rate of interest, which reduces in part the costs incidental to heavier investments of capital under government direction. Capital obtained under private enterprise involves heavier

charges in terms of dividends and interest.[2] These heavier charges may be paid from the differential advantages peculiar to a new country possessing virgin natural resources. Because of her late development, Canada found herself in possession of vast quantities of raw materials, of which the supply of older industrial countries was being exhausted and for the exploitation of which the mature technique of these older countries was at hand. The returns may be enhanced by monopoly control, but on the whole this has not been a success since Canada must compete with other new countries producing bulk raw materials. Consequently, in a competitive market Canada can only take advantage of her possession of virgin natural resources by acquiring capital at the lowest possible interest rate, and thereby limiting the power of private enterprise to draw off her wealth in the form of high interest charges and dividend rates. Under private ownership and monopoly control, such as the ownership of large public-utility undertakings involve, the high interest charges and dividend rates may be provided by a slow, gradual development which may amount practically to retardation. Earnings are paid by withholding as well as by supplying the service required, the essential determining factor being earnings. Under government ownership[3] low interest rates, and the supplying of the service at cost, leads, on the other hand, to more rapid utilization. Government ownership of hydro-electric power in Ontario and of telephones in the Prairie Provinces have brought the services involved within reach of the consumers in the shortest possible time and have enabled the consumers to obtain a more substantial share of the virgin natural resources, whether they are in the form of water power from Niagara or the cheaper wheat-producing areas of the Prairie Provinces.

Those enterprises, financed by the provinces and the municipalities to serve a large number of customers and which involve highly-technical management and heavy initial capital investment for rapid utilization, have been, on the whole, and allowing for costs of mistakes in the early stages of experimentation, successful. Enterprises which are financed entirely by the provinces, as in the case of the T.N.O., are apt to emphasize the dangers of government ownership. They involve a direct addition to the debt of the province and constitute a fluctuating and inflexible item in the budget. They are undertaken as recognized additions to the debt of the province, with a view to making accessible actual and potential resources. The costs are not definitely allocated, and the enterprise is in danger of becoming a potential weapon of the government in power. Railways are less suited to government ownership by provinces, as they involve a close relationship to one particular section. Nevertheless, as in the case of hydro-electric power and telephones, they serve to secure a substantial return from virgin natural resources by acquiring capital

at a comparatively low rate of interest and by providing service at cost and less. Similarly, they are responsible for a rapid increase in utilization of the service.

The development of government ownership in the provinces has been the result of the rapid expansion of transcontinental railways by the Dominion. It may be said that, indirectly, rapid expansion of transcontinental railways has been responsible for government ownership of those railways. A country generally committed to private ownership of railways has found it necessary to enter government ownership on an extensive scale. The immediate construction of transcontinental railways involved a heavy investment of capital on the part of the government at first in the form of cash and land subsidies, and later in the form of loans and government guarantees. This heavy initial outlay, expended first under the direction of private enterprise and later under government ownership, necessitated the acquisition of tremendous quantities of capital.

Capital has been obtained by the Dominion government chiefly through its ability to pay interest charges out of revenue obtained through the tariff. The extent of capital has been greatly increased, as in the case of the provincial governments, i.e., the Chippawa project during the war, by building without reference to the price level, and the Intercolonial during the depression of the seventies by building at too high a standard in the beginning because of the influence of the engineers, as on the government sections of the C.P.R., the Intercolonial, the National Transcontinental and the Grand Trunk Pacific, by rank extravagance, as shown in the case of the National Transcontinental Railway, and by duplication of lines and facilities and badly-located routes. These additional costs of capital under government ownership (or rather private enterprise, with government support and its consequence, government ownership) must be offset by the high dividend rates on large capital stock of private enterprise. Returns from the rapid exploitation by a mature technique of virgin natural resources are absorbed in high dividend rates in the case of private enterprise and by lower[4] freight and passenger rates, and a deficit made up by revenue from tariff in the case of government ownership. The tariff does not represent an attempt to precisely allocate costs, but it is in some sense a means by which new developments, which involve imports of capital goods, are made to pay a share of the returns from exploiting virgin natural resources. Not only does it secure a portion of the returns in this way, but it also helps to provide an east-west haul in Canada, thereby increasing the earnings directly, as well as in a very important sense by reducing the costs of the backhaul of empty cars westbound.

Government ownership in Canada is fundamentally a phenomenon peculiar to a new country, and an effective weapon by which the government has been able to

bring together the retarded development and the possession of vast natural resources, matured technique, and a market favourable to the purchasing of raw materials. It was essentially a clumsy, awkward means of attaining the end of immediate investment of tremendous sums of capital, but it was the only means of accomplishing the task and of retaining a substantial share of the returns from virgin natural resources. Canada's development was essentially transcontinental. Private enterprise was not adequate to the task, although the success of government ownership has tended to obscure the paramount importance of its contributions during the early stages of capital development.

On the whole, government ownership has been steadily improved from the standpoint of labour, management and capital. The successful lines have tended to follow an attitude of generosity toward labour, a closer scrutiny of the investment of capital, and a reliance on a single individual as the prominent driving force in management. It provides a young country with a means of protecting itself against the more vicious abuses following the introduction of capitalism. The dangers incidental to the extremely rapid exploitation of natural resources, following the pressure of government ownership, will tend to become less serious with a growing realization of the necessity of operating from the long-run point of view and of the importance of continuous production. While government ownership has served as a fresh breeze to the flames of exploitation, the destructiveness of these flames has been rendered less serious by tempering new developments to the old background. In the future it will be brought more directly under control, and it will serve as a force tending toward stability and, in its tremendous purchasing power, toward building up the industrial life of Canada.

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[1] Distribution of capital cost per installed horsepower of primary power:

	Quebec	Ontario
Generation	114	136
Transmission	17	43
Distribution	19	46
General	10	19

L. R. Thomson, "The St. Lawrence Problem," *The Engineering Journal*, April, 1929, p. 275, and *Central Electric Stations in Canada*, 1925.

[2] The C.P.R. acquired the right to split its stock in order to make it

available to larger numbers of stockholders and consumers in Canada and thereby to overcome the objection that dividends were paid to shareholders outside the country.

[3] This explains in part the difference between costs of electric power in Ontario and in New York.

[4] i.e., lower than necessary to support the road but sufficiently high to enable a competing road to earn seven per cent. on railroad operations and ten per cent. on all operations prior to the depression.

III. PROBLEMS

I. THE CANADIAN NORTH

The glaring publicity which has been given to the recent development of the north has tended to throw into obscurity the long and continuous occupation of that area. It is a peculiar characteristic of Canadian history that areas widely separated have been occupied at about the same period. Hudson Bay was discovered in 1610, or two years after the founding of Quebec. About a quarter of a century after the establishment of Montreal (1642), the first post was established at Rupert River (1668) and, twenty years later, Churchill was occupied. The first posts were built at what are now Winnipeg and Portage la Prairie eleven years before Toronto was established (1749). Within forty years after Toronto had been built, Chipewyan was established (1788) and Mackenzie had reached the Arctic Ocean at the mouth of the Mackenzie (1789). The failure to appreciate the continuous and unifying character of our history, and the discrepancy in importance between areas occupied at about the same date, are both results of a long series of profound movements which have characterized Canadian development. No country has swung backwards and forwards in response to such factors as improvements in the technique of transport, exhaustion of raw materials and the advance of industrialism with such violence as Canada. Our history presents the same baffling complexity to the historian as does the Canadian shield to the geologist. We have been unable to interpret or predict the lines of Canada's development either because of its complexity or the rapidity, and magnitude of its changes. What can we predict for the Canadian north?

We shall proceed on sure ground if we trace briefly the developments to the present. In a vast north temperate land area which slopes towards the north, the open season is short and traffic is restricted to the northward-flowing rivers, the Yukon and the Mackenzie, and the area accessible to ocean transport, the Arctic and Hudson Bay. The development in each of these areas has been largely independent. Each has witnessed marked changes during the past half-century.

The northward trek of the placer miners from California in 1849, to the Fraser in the 'fifties, the Cariboo in the 'sixties, the Cassiar in the 'seventies, continued to the Yukon in the 'eighties and led to the epoch-making discovery on Bonanza Creek on August 16, 1896. The rapid exhaustion of gold followed the steadily improved technique of industrialism as shown in the introduction of steam points for handling frozen ground, the construction of pipe lines for hydraulic operations, the utilization

of water power for the operation of dredges, and the improvement of transportation by the construction of railroads and the introduction of river steamboats. The Klondike gold rush witnessed the first impact of recent industrialism on that portion of northern North America above the frost line. The whirlwind character of the attack was an indication of its success and of its failure. The development of coal-mining, lumbering, agriculture and water power followed the expansion of placer mining and the growth of Dawson, while the decline of Dawson necessitated a laborious search for new industries, partly rewarded by the opening of the silver lead mines at Keno on the Stewart River, fur farming and the tourist. The evolution of placer-mining technique on the Klondike and its tributaries was followed in turn by the rush to the placer mines of Alaska, as at Fairbanks and Nome.

No one can travel down the Mackenzie River[1] without realizing the importance of the economic cyclone on the Klondike to that area. Miners and prospectors started down the Mackenzie for the Yukon by way of the Peace, the Liard and the portage from McPherson to the Porcupine. Some of these men succeeded, others were lost on the trail and others settled down at various points along the Mackenzie River. The Hudson's Bay Company's monopoly saw the beginning of the end when prospectors and miners became trappers and traders. But the rise in the price of furs during the war, the completion of the transcontinental railways with the resulting displacement of river steamboats, and the search for oil in remote areas, precipitated the final break in the oil rush at Norman of 1920. Improved transport followed the construction of the railway to Peace River (1914), and to Athabasca Landing (1916) and Waterways (1920), the introduction of gasoline tractors and trucks on the Smith portage, and gasoline motor boats on the Mackenzie and the Liard. Improved communication has followed the establishment of a winter air-mail service to Aklavik. The immediate results of these developments have been the work on the tar sands of Athabasca and the discovery of mineral deposits at Stony Rapids on Lake Athabasca, on Slave Lake and on Bear Lake.

The Mackenzie and the Yukon rivers have favoured the development of the fur trade and mining with heavy downstream movement of traffic and light upstream return cargo. In the areas accessible to the ocean, the river steamboat is replaced by deep-draught, ocean-going boats. The development of the Arctic has been profoundly influenced by gasoline transport, which involves lightness of fuel, speed and relatively light draught, making it possible to reach the otherwise inaccessible areas along the coast. Its beginning, however, came with the whaling industry, which extended beyond Bering Straits and finally reached Herschel Island in 1889 and later Baillie Islands. The work of Stefannson and the Canadian Arctic Expedition,

accompanied by the rise in the price of fur, and the importance of the white fox during the war, gave a new value to the western Arctic. The Hudson's Bay Company sent a gas schooner from Vancouver in 1914, and was successful in the following year in establishing the beginnings of a line of posts east of Coronation Gulf. In spite of the difficulties of the voyage across the Beaufort Sea, alike from shallow water and pack-ice, as shown in the loss of the *Karluk*, the region has been effectively consolidated.

In Hudson Bay steam navigation and gas boats have also revolutionized transport. As in the western Arctic, whaling led to the exploration of territory north to the Arctic archipelago and in Hudson Bay. The Hudson's Bay Company used the steamboat to York Factory as early as 1892. Motor boats have improved the transportation between the depot on Charlton Island and the various posts along the shores of James Bay. Finally in 1932, following the completion of the extension of the Temiskaming and Northern Ontario Railway to Moosonee, the Hudson's Bay Company failed to visit Charlton Island, and goods for the James Bay district went in by rail. Again, as in the western Arctic, the rise in the price of fur gave new importance to the white fox, and the Hudson's Bay Company established posts north on Baffin Land and along the west coast of Hudson Bay at Eskimo Point, Chesterfield Inlet, Wager Inlet and Repulse Bay. In 1929 an ocean-going steam vessel, the *Ungava*, for the first time visited Wager Inlet and Repulse Bay.

In each separate district marked progress has been made in accessibility through improvement of transport for handling heavy ingoing traffic. The basis for expansion has been firmly laid. But the possibilities of expansion depend on the events of 1929. If any one date may be chosen as epoch-making from the standpoint of the development of the Canadian north, it will be that year. It must be regarded as an historical height of land. The last spike of the Hudson Bay Railway, wrapped in tobacco foil, was driven at Churchill (Mile 510 from The Pas) on April 3rd, and the first passenger train, the Muskeg Limited, arrived at Churchill following the completion of the first lift of gravel on September 13th. In the same season 1,800 pounds of wheat were exported from Churchill, the first consignment of goods was imported from England, and the first shipment of gold-bearing quartz was made from Term Point via Churchill.

The importance of the Hudson Bay Railway was realized as early as the 'sixties, when the Hudson Bay route began to decline with increased traffic from the south, and the advantages of steamships in ice navigation were appreciated. The possibilities of the straits were favourably reported upon by government expeditions, and acts of incorporation for the construction of the road were passed in 1880.

Encouraged by land grants, by subsidies from federal and provincial governments as a part of a main line of the Canadian National Railway from Winnipeg to Prince Albert, it finally reached The Pas in 1908 by a roundabout route of 467 miles. After the selection of the Nelson terminus, 322 miles were built before the war occasioned the halt in 1917. Post-war depression, especially in western Canada, the growing strength of the metropolitan units in Saskatchewan, and the strategic position of western political forces led to new demands for the completion of the road. The terminus was changed to Churchill in 1927 and the line completed in 1929.

The railroad and the port were finally equipped to handle wheat on a large scale in 1932. During the three months which the most conservative estimates concede as the period when the port and the straits are open, say the beginning of August to the end of October, wheat will be exported on a competitive basis with Vancouver, Montreal and New York. Exports of this bulky raw material involve a heavy one-way traffic during a short period of the year over a track which has not been built with reference to a through route from the wheat-growing areas to Churchill. The immediate problem of the road involves the development, even with the most sanguine expectations, of return traffic and off-peak traffic. The importance of the line must be considered primarily in relation to local traffic.

The possibilities of the line in this connection may be considered in relation to actual developments. North of The Pas the agricultural, lumbering and fishing resources may be considered as subordinate to the development of mining. The Flin Flon and Sherritt-Gordon mines are typical developments and of first importance has been the improvement in transport technique, which has characterized the opening of those mines. The caterpillar tractor has solved the problem of winter transport and converted the long-closed winter season to the open season of transportation. The Island Falls power plant on the Churchill has been built with materials hauled fifty-six miles from Flin Flon by tractor. Railroad construction was also revolutionized on the line from The Pas to Cranberry Portage and perfected on the northward stretch of the Hudson Bay line from Mile 356 to Churchill. Again the long winter became the open season and the short summer the closed season. In the construction of the Flin Flon line and of the Hudson Bay Railway, improvement in the technique of transport of heavy material and supplies has been an important and permanent contribution. The opening of the mines has been responsible for the development of water power, lumbering, agriculture and fishing. The Hudson Bay Railway has provided a base by which the Precambrian area can be successfully tapped between The Pas and Churchill, and by which the territory north of Churchill has been made accessible at Chesterfield Inlet and Baker Lake and Wager Inlet, as well as along the coast on

both the east and the west side of the bay. Flin Flon will probably become the mother camp for the mines of the future in north-western Canada, and the experience gained in town planning, architecture and general living conditions at Churchill will serve as a basis for future expansions.

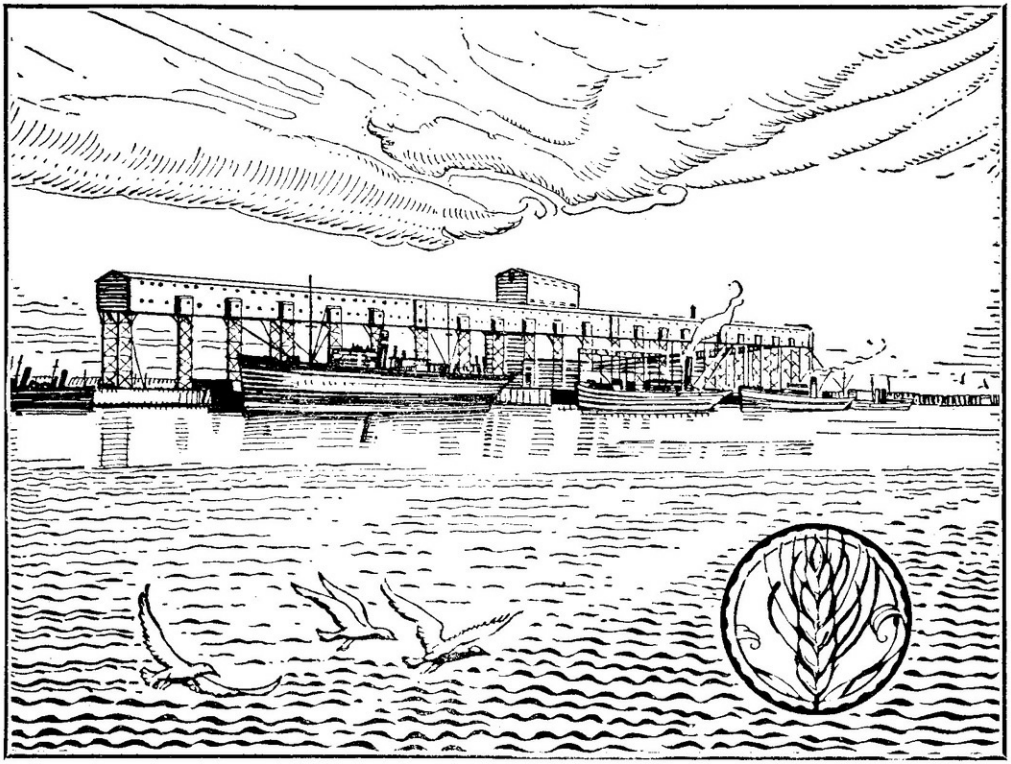
The significance of the Hudson Bay Railway, however, lies much deeper than in the immediate development of traffic and in the evolution of transport technique. It is the keystone of the arch in the development of northern Canada. It will bring together the hitherto isolated and independent areas of the North-West. Contrast the journeys of the Tyrrells from the Mackenzie River district to Hudson Bay and the expeditions of Hanbury and Hornby with the journey of the Nipissing men under Mr. Harold Wilson in 1928, from Edmonton across to Chesterfield and out to Winnipeg in the same season. In 1929 prospecting parties were engaged along the Hudson Bay coast from Churchill to Repulse Bay. Whereas by way of the Mackenzie the northern part of the Canadian shield could be attacked from one side, it can now also be approached by the Arctic and Hudson Bay. With the support of the experience of such veterans as Blanchet and Cornwall from the Mackenzie and the Arctic, and of Captain Mack from Hudson Bay, it has been possible to open the north and to operate across the whole area from bases established on three sides. The aeroplane has been enlisted as one more weapon in discovering the possibilities of the north—to be followed up by the motor boat, the tractor and the railroad. The Lindbergh flight of 1931 was only possible as a result of improved transport throughout the north. With the success of a tractor route from Wager Inlet to the mouth of Backs River, the Arctic archipelago becomes accessible from the south.

With the opening of the new North-West, Canada is faced with problems which can be solved only by the application of all the scientific knowledge she can command. In geology the needs are obvious. In the exploitation of animal resources through the Eskimo, biology, anthropology and medicine are equally involved. In transport, problems of Arctic aviation, to mention only those of meteorology and geography, are of foremost importance. Fortunately we shall be able to draw on the experience of scientists, including the long line of British explorers, and in our own time the work of Bell, Anderson, Stefannson, Jenness, Burwash and Blanchet, of Amundsen, Rasmussen and Bernier, of Pettitot, Stringer and Walton and, more recently, of Wilkins and McAlpine. Moreover, we shall be able to borrow from the experience of Siberia, Alaska, Norway and Sweden in the raising of reindeer, of Greenland in the exploitation of resources, and of Newfoundland in the handling of ice conditions. But in spite of this assistance, these problems will be solved only with the application of the most advanced research, patience and perseverance. The

Hudson Bay Railway presents the challenge of the twentieth century. The days of propaganda are over and the time for scientific work has arrived. It is more than a coincidence that its construction has accompanied the most recent advances of industrialism.

The effects on Canada are difficult to predict. With the decline of the Hudson Bay route in the past, eastern Canada has prospered as in La Vèrendrye's period in the French règime, the golden days of the Beaver Club and the North-West Company, and the early part of the twentieth century, while with its rise in importance eastern Canada has been seriously affected as after the establishment of the Hudson's Bay Company in 1670, and after the amalgamation of the North-West Company and the Hudson's Bay Company in 1821. It would be dangerous to predict the course of events after 1929, but such has been the course of events in the past. Certainly there will develop closer relations between western Canada and England and the Maritime Provinces if they seize the opportunity. Possibly the blighting influences of centralization characteristic of Canadian development will be mitigated. Certainly the new industrial revolution, with its demands for base metals, its scientific knowledge, its contribution of gasoline, air transport and water-power utilization, combined with cheap transport at tidewater over a long coast line, and the conversion of the long winters to open seasons will have a tremendous influence on the vast continental area of northern Canada. In the whole of Canada, as well as in northern Canada, we shall probably have closer integration and a more sane and balanced growth. Whatever may be the effects, the elasticity of Canada's political, economic and social structure which has enabled her to survive the changes of the past will stand her in good stead for the future.

We shall expect, therefore, in the Canadian north, fresh and successful activity in the search for minerals and in their exploitation. With this activity transport facilities will be improved and subordinate industries, water power, fishing, the fur trade and animal husbandry, will be developed. The tourist trade will follow transport. Tourists may possibly proceed down the Yukon and across to the Mackenzie, returning up that river or, proceeding along the Western Arctic, cross over to Hudson Bay. Fur farming should receive fresh stimulus from the tourist trade. The opening of mines will be favoured by the Hudson Bay route, and the cheap import rates made possible by wheat exports. These probable developments will hasten the industrial growth of western Canada and enable that area to proceed on a more stable course than is possible with dependence on a single crop. The Hudson Bay Railway may incidentally be a cheap outlet for wheat.[2]



Loading Grain at Churchill

Ten vessels were loaded with grain in 1932, the last about October 10th. Ice began coming down the river on that date. The vessels loading in the above illustration are, left to right: *S.S. Bright Fan*, *S.S. Pictro Cammerulea*, *S.S. Rio Claro* and Tug *Ocean Eagle*. The *S.S. Bright Fan* struck an iceberg on October 1st near Wakeham Bay and sank, the courts deciding that "a good and proper lookout was not maintained."

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[1] See E. Page, *Wild Horses and Gold, from Wyoming to the Yukon*. (New York, 1932.)

[2] See D. A. MacGibbon, *The Canadian Grain Trade* (Toronto, 1932), 491-8, also H. A. Innis, "Hudson Bay Railway," *American Geographical Review*, January, 1930.

II. INDUSTRIALISM AND SETTLEMENT IN WESTERN CANADA

The papers which have been read before this section, and those published in the *Report of the Commission on Types of Rural Settlement*, 1928, have dealt chiefly with settlements in England and in Europe which had been thoroughly established at the beginning of the so-called Industrial Revolution. These settlements have been profoundly influenced by modern industrialism, but in most cases a continuity of life and organization is evident. This paper purposes dealing with a radically different type of settlement—such as is found especially in western Canada and the new countries—which have had their *raison d'être* in modern industrialism. Although a study of these settlements must proceed from different premises, it is hoped that the final conclusions may prove suggestive to the study of the types of rural settlement which have been of chief interest to this section. Moreover, a study of the influence of modern industrialism, as confined to western Canada, should be of value to the study of settlements in new countries, such as Argentina and Australia. This paper can only attempt a study of the background of the main movements and clear the ground for later more intensive work. It must be content with a survey of the factors peculiar to the spread of industrialism as they are shown in western Canada.

In the first place, an appreciation of the characteristics of modern industrialism is essential. The general trends are well known as to space and time. The conspicuous rise of industrialism in the latter half of the eighteenth century and in the nineteenth century in England, and the spread in the latter half of the nineteenth century, especially to the United States, Germany, and Japan, are matters of common observation. The spread has been of an uneven character and has been affected materially by wars and in turn by the development of the iron and steel industry. The United States became rapidly industrialized after the Civil War, Germany after the Franco-Prussian War, Japan after the Russo-Japanese War. The repercussions of the Great War on the industrial growth of the new countries have been evident on all sides. Important as these sudden spurts of industrialism have been to the new countries, they must not be permitted to obscure the significance of steady and persistent experimentation essential to the evolution in technique of machine industry. The technique involved in the countries which have had the longest experience, as in England, has been modified and improved and borrowed wholesale by the new countries.[1] The painful experiences incidental to earlier inventions have been eliminated, and the results of the experiments are taken over with little difficulty by the new countries. Industrialization of the new countries, given suitable political and

social organizations, tends to become cumulative—the United States became industrialized more rapidly than Great Britain, and Canada more rapidly than the United States. The more recently the country has been industrialized, the more rapid tends to become its industrialization.

On the other hand, the cumulative tendency is accompanied by a continuity. The early centres of industrial growth become more directly linked with the new centres. The experience, fixed capital, financial and social organization, and the advantages which facilitated the growth of industrialism are factors which enable the older centres to benefit from the industrial growth of the new centres. Abundant supplies of iron and coal and accessible, all-the-year-round water-transport permit continuous operation, the reduction of overhead costs, and the concentration of industry. The advantages of England as an industrial centre need no description.

The significance of the cumulative tendency of industrialism and of the continuity of industrialism to Canada and the new countries is obvious. Canada has been able to produce on an increasingly large scale, on account of the essential advantages of machine industry, the raw materials for the industrialized countries. She has in turn provided a market for the products of the industrial countries. Her limitations, of iron and coal, and of her seasonal navigation, have made her more dependent on the older industrial countries. The concentration on raw materials is immediately suggested by a reference to wheat, lumber, pulp and paper, minerals, and fish. The rapidity with which production in these commodities has increased since the opening of the present century has depended on extensive borrowing of technique from the United States which had been in part earlier engaged in providing these staples to Great Britain and Europe. It has depended also on the increasingly rapid industrialization of the older countries with the rapid growth of urban population and the increasing demand for supplies of raw material, especially with the exhaustion of old sources.

From the standpoint of this paper we can limit our attention to the study of wheat[2] as produced in western Canada. The Civil War in the United States gave a direct impetus to the iron and steel industry and rapidly hastened the spread of industrialism. In the succeeding decade railroad construction proceeded rapidly and the wheat-producing areas were rapidly extended. In the new areas the technique of production was improved materially, especially in the decade from 1872 to 1882. Immediately after the Civil War the self-rake reaper was in general use. The harvester displaced the self-rake reaper between 1872 and 1875, and the wire binder came in between 1874 and 1878, to be quickly displaced by the twine binder in 1879. The effect of these improvements was shown in a reduction of the number

of men required in the peak harvesting season, the saving of grain and the rapid occupation of the north-western states. The self-rake reaper required for one day, cutting eleven acres, two horses and a driver, four or five men to bind and one man to shock. The harvester required two men to bind and one man to drive two horses. The twine binder with a six-foot cut required for twelve acres a day three horses and one man to drive and one or two men to shock. With the introduction of steam-power and especially of the straw-burning engine in 1875 to 1880, harvesting was speeded up materially. With these technical advances, the Homestead Act of 1862 and the uniform system of surveying of quarter-sections of 160 acres and townships of six miles square, the territory was rapidly settled and brought under cultivation. Transport improvements accompanied the improvements of agricultural, implements. Steel rails were substituted for iron, canals were enlarged, and larger grain vessels introduced on the Great Lakes, especially from Chicago to Buffalo. Rail competition forced down lake and canal charges; and reduced costs of handling at terminal points, as Chicago, New York and Liverpool, accompanied lower freight rates. Grain elevators were in use in Liverpool towards the end of the decade and were rapidly installed in other centres. Improved marketing accompanied improved transport. After 1874 grain was graded and shipped in bulk, whereas formerly it had been handled chiefly in special lots on consignment. Through these reduced charges it was estimated that the cost of hauling one bushel of wheat from Chicago to New York declined from 1876 to 1881 from thirty-two and one-quarter cents to seventeen and four-tenths cents. Ocean shipping was subject to marked improvement. In 1867-8 the iron steamship was beginning to replace the sailing vessel. Ocean freight rates declined steadily from 1873 to 1891. Indirectly improved ocean-transport favoured the position of hard spring wheat. Fresh meat shipments to Great Britain began about 1875, and the winter wheat sections became more concerned with mixed farming. Hard spring wheat occupied a stronger position, however, through the introduction of new milling processes after 1880-1—the roller process and the gradual reduction method. After 1875 winter wheat tended to remain stationary and spring wheat to increase rapidly. The higher price of winter wheat gradually disappeared, and by 1889 had vanished entirely.

In the decade from 1872 to 1882, wheat production had increased materially in the United States. England as a consuming country through increasing industrialization became adjusted to this situation. It has been shown that from 1852 to 1872 the price of wheat in England varied inversely with British crops. After 1872 the world crop became a determining factor, and price became the relation between the crop of industrial countries and the world market. The American price of wheat

was governed neither by the American volume of wheat nor by the British volume. Wheat had shifted to a world market, and England became more definitely dependent on outside areas for her food supply.

The technical developments in the United States responsible for a rapid increase in the production of wheat and the increasing industrialization of Great Britain were significant factors in the opening up of western Canada. The experience of the United States was taken over and adapted to Canadian territory. In railroad construction Van Horne, Shaughnessy, and others brought to Canada the ripe experience of the United States. Lower costs of production for dynamite facilitated construction through the difficult Precambrian area north of Lake Superior. Railroad cars, rails and general equipment were produced at lower costs through the advantages of American experience and large-scale production. The Canadian Pacific Railway was completed from Winnipeg to Vancouver on the west and to Montreal in the east in a remarkably short period of time—almost one-half of the time provided for in the charter. The country was rapidly surveyed and the territory opened for new settlers, who were brought into the country by extensive advertising on the part of the railway and the government. The industrial equipment of the United States, of Great Britain, and latterly of Canada hastened the production of agricultural implements, of lumber for farm buildings, of fuel, and of food and clothing. In the wave of industrialism of the past century and a half, Canada was in the crest and received the full impetus of the momentum.

The geographical background tended to accentuate the rapid development of industrialism and the rapid borrowing from the United States. In the first place the continental background of the United States was an important factor in the development of large-scale production, mass output and low costs. The level prairies of western Canada facilitated rapid railway construction[3] and rapid occupation by settlers. The relative absence of large trees made possible the rapid breaking up of virgin soil and hastened the production of wheat. The Great Lakes offered a convenient waterway for the shipment of great quantities of wheat to the Atlantic seaboard. Geographical handicaps,[4] occasioned by the location of the mountain-passes which determined the projection of the main line, were of relatively slight importance.

The political background had a similar tendency to accentuate rapid development. The Prairie Provinces and British Columbia were transferred at practically one stroke from the control of the large centralized organization of the Hudson's Bay Company[5] to the government of Canada. It was imperative that

western Canada should be developed in the shortest possible time from the standpoint of the prosperity of eastern Canada and from the fear of annexation to the United States. The importance of the unified control of eastern Canada was shown in the substantial subsidies in money, in land, and in other forms to hasten the construction of the Canadian Pacific Railway and the settlement of the west.

The political background affected in turn the financial background and hastened the spread of industrialism. Control of the railway was placed in the hands of a single company in order that construction should be carried out more rapidly and that the country should be settled more effectively. The energies responsible for rapid settlement could be directed with great effectiveness toward the single task of encouraging immigration and developing traffic. Moreover, the impact of the tremendous overhead charges involved in railway construction, especially through the Precambrian area in the east and the Rocky Mountains in the west, and in the heavy peak-load traffic incidental to the export of wheat in the season of open navigation, necessitated the immediate and rapid settlement of the west.

Another important factor in hastening the spread of industrialism in western Canada was the growing efficiency of the price-mechanism. Wheat produced in Canada was sold on a world market in return for a direct cash payment. The numerous transactions involved in the transfer of wheat from the Canadian producer to the English consumer necessitated a high stage of efficiency in the marketing of wheat and in foreign exchange and internal exchange. Canadian banks[6] were rapidly extended from headquarters in the east, and adjustments were made by which wheat could be sent directly from the frontier to the centres of industrialism with the least possible friction. This efficiency assumed improvements of communication, elaboration of banking skill, and a comparatively effective educational system.

The cumulative effects of these factors were shown in the marked and rapid increase in the production and export of wheat.[7] The effects on settlement of this concentration on wheat production may be suggested. Settlers were scattered along the railway lines in a belt generally not exceeding twenty miles[8] on each side of the right-of-way or of a total width of forty miles. Land was occupied which could be broken into cultivation with the least possible difficulty and from which grain could be hauled to the elevators for shipment with the lowest possible costs. Land areas near the railways not suitable to wheat production have been devoted to other products, with the aid of the railway companies, for example, in financing irrigation projects. Rapid production of wheat involved the immigration of virile young men. Farm

buildings were rapidly constructed on the quarter-sections with reference to accessibility to field work. Family life and social life were temporarily broken up. Wheat production involved periods of great activity in the sowing and harvesting, and periods of relative inactivity in the winter months and the growing seasons. Long-run fluctuations followed periods of prosperity and depression, depending on prices but chiefly on the weather and on seasonal changes of a long-run character. As a result of these factors, social and community life was seriously handicapped. Village communities transplanted especially from Russia, as with the Doukhobors and the Mennonites, faced obvious difficulties. Schools, churches, and the centres of community life generally grew up very slowly. Urban centres were created in direct relation to the railroads and the convenience of elevators for grain shipment, e.g., approximately eight miles apart with loading platforms four miles. These centres became distributing points for supplies, e.g., agricultural implements, lumber, coal and general merchandise. Larger centres flourished at divisional points located approximately 110 to 130 miles apart, depending on accessibility of water and the efficiency of engines, at which engines and train crews were changed. The largest centres were dependent on the location of branch lines and junction points, of terminal points, and the stimulus to population afforded by government buildings,[9] educational facilities, and wholesale houses. The importance of railroads and government subsidies to the growth of towns has been largely responsible for periods of feverish real-estate speculation and the heavy charges for long street-car lines, electric light lines, gas pipes, telephone lines, and sewerage systems characteristic of the urban centres of western Canada.

With increasing population, industrialism has been partly responsible for an alleviation of the difficulties of slow community growth. Branch lines have been built, giving greater accessibility. The automobile, the telephone and the radio have contributed to a solution of the problems. Better living conditions have followed the improvements of transport and communication. The wheat pool has developed as an evidence of a new solidarity.

It is not the intention of this paper to discuss in detail the effects of industrialism. It is hoped, rather, that an appreciation may be gained of the necessity of a different point of view for the study of settlement in new areas. Important as has been the work of Prof. Gras[10] and his students in the study of metropolitan economy, it is doubtful whether the conclusions can be applied satisfactorily to western Canada. Certainly settlement in western Canada differs fundamentally from settlement in eastern Canada and in the old world.[11]

[1] See Thorstein Veblen, *Imperial Germany and the Industrial Revolution* (New York, 1918), for the argument on Germany's borrowing, and numerous references in C. R. Fay, *Great Britain from Adam Smith to the Present Time; an Economic and Social Survey* (London, 1928), to the borrowing of the United States. The problems of anthropology which centre about the study of diffusion of culture as shown in C. Wissler, *The Relation of Nature to Man in Aboriginal America* (New York, 1926) and W. F. Ogburn, *Social Change* (London, 1923) are of crucial importance to an understanding of settlement in Western Canada. It is important to note that the advantages of borrowing which arise from the application of mature technique to virgin natural resources are reduced by the tendency for countries to dispose of or dump obsolescent machinery, e.g., agricultural implements, to countries with virgin natural resources and in this way to reduce their own costs of improved equipment.

[2] See T. B. Veblen, "Price of Wheat Since 1867," *Journal of Political Economy*, 1, p. 68, also C. W. Peterson, *Wheat* (Calgary, 1930), Ch. 1x; J. E. Lattimer, "Labour Requirements in Farming," *Contributions to Canadian Economics*, Vol. II, pp. 14-33; D. A. MacGibbon, *The Canadian Grain Trade* (Toronto, 1932).

[3] See W. H. Barneby, *Life and Labour in the Far Far West* (London, 1884) in which six and a half miles is given as a record for one day's construction.

[4] The Kicking Horse Pass necessitated the development of less productive soil in the south. The choice of the southern route has been of enormous significance to Canadian economic development.

[5] See H. A. Innis, *Fur Trade in Canada* (New Haven, 1930 and Toronto, 1933).

[6] See Victor Ross, *A History of the Canadian Bank of Commerce* (Toronto, 1920), especially Vol. II.

[7] For statistical evidence the *Canada Year Book* should be consulted. The increase was far beyond the most optimistic estimate of those consulted in James Mavor's *Report to the Board of Trade on the North-West of Canada* (London, 1904). See D. A. MacGibbon, "The Future of the

Canadian Export Trade in Wheat," *Contributions to Canadian Economics*, v; also *Agriculture, Climate and Population of the Prairie Provinces of Canada* (Ottawa, 1931).

[8] Wheat may be hauled 50 miles to the elevators, particularly with the increasing importance of trucks, but the handicaps are obvious.

[9] In Saskatchewan the university is located at Saskatoon, the parliament buildings, the normal school and police headquarters at Regina, the provincial asylum at Weyburn, and the penitentiary at Prince Albert.

[10] N. B. Gras, *An Introduction to Economic History* (London, 1922), also M. Hartsough, *The Twin Cities as a Metropolitan Market* (Minneapolis, 1925).

[11] The Pioneer Belt project, under the direction of Professor W. A. Mackintosh, has in hand a thorough survey of settlement problems in Western Canada. See *Pioneer Settlement* (New York, 1932) and I. Bowman, *The Pioneer Fringe* (New York, 1932).

III. STAPLES AND THE DEPRESSION

The available statistics on the external trade of Canada point directly to the outstanding effects of the depression.

External Trade
(Millions of dollars)

	Total Imports	Total Exports	Excess of Exports	Percentage of Exports to Imports
1928	1,109	1,251	+142	112.8
1929	1,265	1,389	+123	109.7
1930	1,248	1,145	-103	91.7
1931[1]	907	817	- 90	89.0
1932	579	588	+ 9	101.5

The decline in exports and the appearance of an unfavourable balance in 1930 are significant facts. The character of the trade and the chief countries concerned are shown in the following table:

Export Trade
(Millions of dollars)

	1928			1929			1930			1931
	U.K.	U.S.	Total	U.K.	U.S.	Total	U.K.	U.S.	Total	Total
Vegetable Products	*310*	56	555	*325*	59	647	*187*	49	385	211
Animal Products	49	92	166	48	85	159	41	67	133	71
Wood and Wood Products	17	*239*	285	22	*236*	289	21	*238*	290	184
Non-ferrous Metals	16	44	91	16	63	113	15	102	154	74
Total Exports	412	478	1,228[2]		430	500	1,364	282	515	1,120

The weakness of the trade situation is shown in the decline of exports of vegetable products, in other words—wheat, as shown in values and volume in the following tables:

Total Exports of Wheat and Wheat Flour
(Millions)

	Wheat		Flour		Total Value Dollars
	Bus	Dollars	Barrels	Dollars	
1928.....	267	352	9	60	412
1929.....	370	429	11	65	494
1930.....	177	216	8	45	261
1931.....	217	177	7	33	210
1932.....	191	116	5	19	135

Exports to United Kingdom
(Millions)

	Wheat		Wheat Flour		Total Value Dollars
	Bus	Value Dollars	Barrels	Value Dollars	
1928.....	189	245	3	20	265
1929.....	230	260	3	17	283
1930.....	113	140	2	14	154
1931.....	132	106	3	13	119

The price of wheat in Canada declined from a yearly average for No. 1 Northern of 146 cents in 1927-8 to 124 cents in 1928-9, and from 160 cents in July, 1929, to 95 cents in July, 1930, and 53 cents in September, 1931. It moved slightly upward to 67 cents in November, but declined to 51 cents in September, 1932.

It is difficult to over-estimate the importance of wheat to Canadian industrial development and to Canada's present problems. The economic and political structure of Canada have been built up in relation to the production and export of wheat. Investments in canals on the St. Lawrence in the 'forties and in railroads in the 'fifties were designed to attract the wheat trade of the western states. Failure to attract this trade was accompanied by the expansion of wheat production, especially in Ontario, which was followed in turn by the construction of the Canadian Pacific Railway and the expansion of wheat production in western Canada. The deepening of the St. Lawrence ship channel, of the St. Lawrence canals, and of the Welland

and the Sault canals, the development of ports and of elevators, and the construction of through lines and branch lines were carried out in relation to wheat. Moreover, the expansion of industry in eastern Canada, and the consequent revolution of eastern agriculture was largely a result of the opening of the West, especially after 1900. The development of the lumber industry in British Columbia and the development of coal-mining and the iron and steel industry in the Maritimes were stimulated by the marked increase in the production of wheat.

The rapidity of western expansion which characterized the period from 1900 to 1914 declined after the war, and industries engaged in meeting the demands for permanent capital equipment, such as railroads, declined in relative importance with relation to the West and were forced to find new markets, as in the case of the British Columbia lumber industry, or to become involved in financial difficulties, as in the case of the iron and steel industry. Industries engaged in the production of consumers' goods and of less permanent forms of capital equipment, such as agricultural implements, have reached a state of relative stability or have found possibilities of continued expansion in new markets. On the whole, wheat has continued in the war and the post-war periods as the *raison d'être* of enormous investments of capital in Canadian transport, industry and agriculture, and fluctuations in the volume and value of wheat produced in western Canada have been registered directly and indirectly in the economic conditions of other parts of Canada. Its influence has been tempered by the growth of mining and of pulp and paper industries, but it remains of basic importance.

A decline in the volume of production and in value of wheat has far-reaching ramifications. The effects on returns on the enormous investments of capital vary as usual with the policy of the organizations concerned, with their opportunities, and with the skill of management, but in the opening of the West, various incalculable and unpredictable factors have been in evidence. Canada emerged as an industrial country at a comparatively late date, and consequently was able to borrow the mature technique of other countries and apply it to virgin natural resources. Her development was therefore rapid. Her political boundaries had been hammered out in relation to the fur trade, and it was necessary to adapt the consequent geographic unit in the northern half of North America to the production of wheat. The importance of cheap water transportation on the St. Lawrence system, the heavy investment of capital on the part of the government in the improvement of the system, the enormity of the task of bridging a continent and the necessity of accomplishing its completion in a short period of time, were factors requiring substantial government encouragement and support.

The character of government support to the improvement of navigation and transportation varied. Improvement of the St. Lawrence system was undertaken as a direct government work in the case of canals and the Intercolonial Railway, and in the form of subsidies and loans in the case of the Grand Trunk and other railways. A cash subsidy, land grant, and numerous minor items of assistance were used in the construction of the Canadian Pacific Railway. Returns on the investments of the government were obtained through the tariff. A. T. Galt, Minister of Finance, stated in 1862 that "the government has increased the duties for the purpose of enabling them to meet the interest on the public works necessary to reduce all the various charges upon the imports and exports of the country—all these improvements have been undertaken with the twofold object of diminishing the cost to the consumer of what he imports and of increasing the *net* result of the labour of the country when finally realized in Great Britain." With raw material, such as wheat, sold on the world market, the tariff was devised as a clumsy but effective weapon to secure returns to meet the interest on capital investment. The element of protection was developed in tariffs following the abrogation of the reciprocity treaty in 1866, and especially in the national policy of 1878.[3] The railroads were assisted by the development of industry and traffic under protection, and interest was paid from revenues obtained from duties on goods imported in spite of protective measures.

The problems involved in this method of receiving returns became evident in the sudden and unpredictable expansion of the West after 1900 which followed the completion of the Canadian Pacific Railway and the deepening of the St. Lawrence waterways. The tariff became successful to the point of embarrassment. The marked increase in revenue, the complaints in the West against monopoly, the profits of the Canadian Pacific Railway and the incentive to other lines, the Grand Trunk in the east and the Canadian Northern, to build competing transcontinental lines, led to the construction of the National Transcontinental line from Quebec to Winnipeg and its extension in the Grand Trunk Pacific to Prince Rupert in the west and Moncton in the east, and of the Canadian Northern from Vancouver to Montreal. These costly and marginal lines became involved in difficulties with the opening of the war and were forced through bankruptcy into the hands of the government. Government assistance, which through the disappearance of free land took the shape of direct contributions in the National Transcontinental and the guarantee of government bonds in the case of the Canadian Northern, led to government ownership.

The post-war period has been characterized by attempts under government ownership to merge various railway systems into the Canadian National Railways. Heavy investments of capital have been made in rolling stock, betterments, branch

lines, directly concerned with western traffic, and in hotels and steamships designed largely to round out the system and to reduce heavy overhead charges. The government has been concerned with improvement of the St. Lawrence waterways, the enlargement of ports, the building of the Hudson Bay Railway and in other developments requiring heavy capital outlays. The Canadian Pacific Railway[4] has expanded the system to maintain and improve its position in the face of Canadian National competition. Expenditures on transport and navigation are indicated in the following table:

Total expenditure on canals, including capital and after deducting income		$273,257,959
Total capital liability of steam railways:		
Stocks	$1,426,680,988	
Funded debt	2,539,676,366	
		3,966,357,355
Total rail and canal		$4,239,615,314

The importance of the two large systems is shown as follows:

Capital Liability, 1929	
Canadian National Railway, 23,880 miles	(*a*) $2,708,714,992
Canadian Pacific Railway, 16,886 miles	882,890,417
Total	$3,591,605,409
	Millions of dollars
(*a*) Total long-term debt, 1931, to the Public	1,276
Total long-term debt, 1931, to the Government	1,393
Total	2,670

The effects of the decline in wheat production and exports on this huge capital outlay may be suggested. The more conservatively capitalized, earlier built and more strategically located line maintained a dividend rate of 10 per cent. on common stock from 1912 to 1930 and was forced to lower the rate to 5 per cent. in 1931, and to pass its dividend in 1932.

The marginal, less elastic[5] Canadian National system warrants a more detailed analysis. Dependence of its finances on government support renders its position crucial to an understanding of the problems of the government and of Canada. The results of its operation since 1925 were as follows:

	Gross Operating Revenue	Net Operating Revenue	Interest on Funded Debt	Deficit

1925.....	245	32	72	42
1926.....	266	46	71	30
1927.....	275	42	73	37
1928.....	305	55	74	30
1929.....	291	42	77	46
1930.....	250	22	83	68
1931.....	193.9	0.4	....	....

—*Canada Yearbook*, 1931, p. 672.

The sharp decline in wheat[6] production and export is suggested strikingly in the increased deficit. In some sense the deficit assumed by the government might be regarded as a continuation of the principle by which the tariff was invoked to support transportation and navigation.

The railroad rate structure, in spite of various attempts to ease its weight on western Canada, tends to rest more heavily on that area[7] chiefly because of potential water competition in the east. The tariff had in part the effect of increasing westbound traffic in manufactured goods and in that way reducing the burden of the railways and in part the effect of providing the revenue by which the deficits on the railways could be met. In combination with government ownership, the tariff served as an effective weapon by which the returns accruing from the application of mature industrial technique to virgin natural resources were retained by Canada.

The effectiveness of this principle begins to show signs of serious weakness. Wheat production in Canada, if it has not already reached its limit, has approached very close to it.[8] The cream has been skimmed off. The marked increase in immigration and in the importation of capital which characterized the period from 1900 to 1914, and to a less extent the period of the war, has shown decided signs of falling off. The effects are cumulative. Falling off in the imports of capital leads directly to a decline in customs receipts and to a decline in railway revenue which benefited extensively from capital importations. Railway deficits increase along with the decline of important measures of paying for those deficits. The possibility of lessening the burden of the railway rates in the west disappears, and with it the difficulty of competing with the newly-opened wheat-producing areas of the world increases. The tariff, especially with the teeth inserted in the application of anti-dumping clauses and orders in council, becomes a means of protecting the Canadian manufacturer without compensation in traffic or revenue, and assists in holding up prices as a further burden to western agriculture.[9] These long-run factors have been obscured by the more obvious character of short-run factors.

A large portion of the central wheat-producing area in the prairie regions, notably southern Saskatchewan, has been subject to severe drought, with the result that extensive relief measures were necessary during the winter of 1931-2. How far the soil drifting, so conspicuous in 1931, may become a permanent feature of western agriculture is as yet difficult to determine. The demands for relief have been extensive and urgent, and territory which formerly contributed largely to traffic and railway earnings and to revenue from the tariff, has become to some extent a negative area making drains on the federal and provincial governments and on the railroads for relief. The wheat crop for 1931 has been estimated at 271 million bushels.[10]

The effect of these long and short-run factors on eastern Canada have been direct but complicated with other developments. The demand for eastern manufactured products, such as agricultural implements, has been seriously affected, and the returns on eastern investments in western Canada, such as on mortgages, have fallen off materially. The post-war period was characterized, however, by rapid expansion of other important industries and by the importation of capital on a large scale in pulp and paper, mining, hydro-electric power and the tourist trade. The development of the automobile[11] was followed by a marked increase in road construction and in fixed charges. The provinces have spent $326,658,798 on highways, or about one-third of the provincial debt. A total of $32,600,000 on maintenance and $19,300,000 on interest and sinking fund was spent by the provinces on highways in 1929-30, this item quadrupling in a decade.[12] Interest on these heavy capital investments has been met in part by taxes on motor vehicles of about equal amounts from licences and gasoline (a total of $36,217,733 in 1929). In addition, revenue from the liquor traffic totalled $27,599,687. The relationship of these taxes to the tourist trade is difficult to determine accurately, but the decline of the latter has been generally noted. The statistics of 1930 and 1931 are possibly over-estimates and the decline suggests, as in the case of wheat, a decrease of capital imports for the construction of roads and hotels, and consequently a cessation of traffic and industry concerned with these permanent developments, and an immediate decline in the tourist trade with a consequent increase in the burden of fixed charges. The problem is accentuated by the continual increase in capital outlays as part of relief programmes—an increase in fixed charges with little immediate prospect of increase in traffic. The railroads have suffered directly in the returns on heavy hotel investments and indirectly in the serious competition from trucks for the remunerative traffic of more densely-populated areas. Municipalities have, along with

the provinces, become involved in heavy outlays for highways and with similar results.

Estimated Expenditure of Tourists in Canada
(Millions of dollars)

1925	187
1926	196
1927	230
1928	267
1929	308
1930	280
1931	251

Like the tourist trade, the pulp and paper industry is closely linked to the swings of business conditions in the United States. But whereas the tourist trade has been greatly influenced by the rise of the automobile, the pulp and paper industry has been influenced by the marked increase in advertising and the general rise of the marketing problem. The exhaustion of raw materials in the United States, the application of mature technique to virgin natural resources in terms of spruce and water power, and the adoption of measures prohibiting the export of pulpwood on Crown lands, were factors contributing to a marked expansion of the industry in the war and the post-war period. Production of newsprint increased as follows:

	Thousand tons
1921	805
1922	1,081
1923	1,252
1924	1,388
1925	1,537
1926	1,889
1927	2,083
1928	2,414
1929	2,725
1930	2,450
1931	2,227

Reduction in output has been accompanied by a reduction in prices from 55 to 50 on May 1, 1931, and to 38.50 in January, 1933. In 1929 it was estimated that the capital invested totalled 645 millions (353 millions Quebec, 297 millions Ontario).

The reduction in output and price has accentuated the problems of over-expansion and led to increasing concentration in the more efficient lower cost mills. The financial difficulties of organizations controlling marginal mills—for example, the reorganization of Canada Power and Paper, and the reduction of capitalization from nearly 104 millions to 51 millions—will tend to restrict further expansion. Moreover, the exhaustion of the more accessible resources[13] supports the conclusion that marked expansion and importation of capital which characterized the last decade will decline to a marked extent. As in the case of wheat, revenue from customs will accordingly decline as well as the traffic and industry which accompany the installation of new mills.

The expansion of hydro-electric power has accompanied the growth of the pulp and paper industry and has stimulated industry generally. Of total installation in 1930, 579,826 h.p. installation was supplied directly by pulp and paper mills, 330,850 h.p. by other industries and 5,214,336 by central electric stations. In 1928 pulp and paper-mill motors had a rated capacity of 859,017 h.p.

Expansion of Hydro-Electric Power

	Total Turbine Horsepower Installed (thousand h.p.)	Million Kilowatt Hours Generated by Central Electric Stations[14]
1921	2,754	5,614
1922	3,008	6,741
1923	3,192	8,099
1924	3,591	9,315
1925	4,338	10,110
1926	4,549	12,093
1927	4,799	14,549
1928	5,349	16,337
1929	5,727	17,962 (4,993 Ontario Hydro-
1930	6,125 (Ontario 2,088,	17,560 Electric Commission)
1931	6,666 Quebec 2,718)	16,074

The capital invested in central electric stations increased from 485 millions in 1921 to 1,056 in 1929 (314 millions Ontario Hydro-Electric). The rapid expansion in the production of hydro-electric power involved heavy imports of capital and intense activity on the part of the construction industries engaged in installation of plants. Demands for labour, materials and services decline precipitately with the completion of construction operations. In turn, the heavy fixed charges involved in enormous initial capital investments, especially with large proportions under government control, and which are generally carried by long-term contracts, prevent substantial reductions to industry.

The mineral industries were closely related to the development of hydro-electric power and expanded rapidly. Production increased as follows:

(Millions of Dollars)

	Total Mineral	Metallic Mineral	Copper	Nickel	Gold	Coal
1922	184	60	6	6	26	66
1923	214	69	13	18	25	72
1924	210	87	14	12	32	54
1925	227	106	16	16	36	49
1926	240	116	17	14	36	60
1927	247	121	17	15	38	62
1928	280	141	29	22	39	64
1929	311	163 (Ont. 84, B.C. 53)	43	27	40	63
1930	279	137	38 (Ont. 15, Que. 10, B.C. 22)	24 (Ont.)	44 (Ont. 35)	53
1931	228	119	24	15	56	41
1932	183	103	15	7	63	37

The industrial metals declined in value partly as a result of a fall in price and an increase in production, and partly as a result of a decline in production. These metals were affected primarily by the demands of the United States. Gold profited materially by the decline of wholesale prices and the weakening of exchange. The total capital employed in the mining industry increased from 632 millions in 1924 to 867 millions in 1929 (427 millions in the metallic industries). The continued expansion of mining with the marked improvement of prospecting methods may be expected, but with such uncertain regularity as to make prediction impossible. Mining development and production involved the import of capital and the growth of industry and traffic. Moreover, it has been important in reducing the overhead costs of the railways on long stretches of line designed for the handling of wheat but running through otherwise unremunerative territory. In-bound traffic for the mining industry offset to a certain extent the heavy overhead costs involved in handling out-bound traffic from western agriculture.

The fishing industry in the Maritimes and in British Columbia has felt the effects of the depression from the standpoint of both the domestic and the world markets. The lumber industry of British Columbia and of the other provinces, as in the case of all industries producing construction material, has been particularly subject to depression.

In conclusion, it would appear that the long-run expansion of agriculture has

tended to diminish materially and that this tendency has been accentuated by the short-run factors of small crops and low prices. The tourist trade has been subject to marked expansion in the post-war decade, but further expansion in permanent equipment, such as roads and hotels, will be much less in evidence, and during the depression the trade has suffered a decline. The pulp and paper industry similarly was subject to rapid expansion and its rate of expansion may be expected to take a decided drop. Hydro-electric power has had a rapid growth and has received a temporary check, but along with mining will probably expand, though much less rapidly. Mining and hydro-electric power, as is suggested by Beauharnois, still continue to offer free gifts, though probably of a much smaller value. Heavy capital investments involved in the initiation of new developments cannot be expected to continue.

The short-run effects of the depression have been obvious. Unemployment[15] in Canada has increased from about 300,000 in 1930 to about 500,000 in 1931, or over 20 per cent. of the workers. As relief measures the Dominion government spent about $49,000,000 (including the wheat bonus) in 1931-2. The problem of relief becomes serious in view of the difficult financial position of the provinces and municipalities. The bonded indebtedness of the provinces increased from 644 millions in 1923 to 820 millions in 1929 and was divided in the latter year as follows:

	Millions of dollars	
P.E.I.	2	
N.S.	50	
N.B.	40	
Que.	80	
Ont.	351	(Ontario Hydro-electric and Temiskaming and Northern Ontario Railway)
Man.	77	
Sask.	58	
Alberta	92	
B.C.	77	(1,017 millions 1931)

All of the provinces with the exception of Quebec have been unable to balance their budgets or have balanced them by drawing on reserves. In Saskatchewan the Dominion assumed responsibility for outlays for relief.[16]

The bonded indebtedness of municipalities increased from 917 millions in 1923 to 1,135 millions in 1929, and was divided as follows:

	Millions of dollars
P.E.I.	2
N.S.	29
N.B.	21
Que.	293
Ont.	451
Man.	86
Sask.	55
Alberta	78
B.C.	118
	(1,209 millions 1930)

The provinces are in some cases planning domestic loans, but with the difficulty of securing capital, the completion of relief works of a useful character, and the attempts of the banks to prevent further borrowing, increased unemployment appears inevitable, and in turn increased direct relief.

The position of the Dominion Government is suggested in the following table:

RECEIPTS FROM TAXATION

Fiscal Year March 31

(Millions of dollars)

	Customs	Excise	War Tax Revenues (including Sales and Income Tax)	Total (including Post Office)
1928	157	57	150	430
1929	187	64	145	460
1930	179	65	134	446
1931	131	58	106 {21 sales tax {71 income tax	356
1932	104	49	122 {47 sales tax {61 income tax	228

EXPENDITURES

	Interest on Debt	Pensions	Public Works	Subsidies to Provinces	Total (including Post	Net Debt

					Office)	
1928.....	129	40	14	13	336	2,297
1929.....	125	41	17	13	351	2,226
1930.....	122	40	18	12	358	2,178
1931.....	121	45	24	17	394	2,262
1932.....	121	49	16	14	375	2,376

The uncertainty of the situation has been followed by the closing of the New York market, and loans to meet deficits and further expenditures of provinces and Dominion have necessarily been floated on the domestic market.[17] The National Service loan for 150 millions, closed on December 12, 1931, was over-subscribed to about 215 millions. On October 31, 1932, the Dominion floated a loan of $25,000,000 of three-year 4 per cent. bonds yielding 4.28 per cent. and of $55,000,000 of twenty-year 4 per cent. yielding 4.5 per cent.

In some sense this is Canada's first serious depression. The long-run secular trend has coincided more definitely with the short-run trend. The cushion provided by virgin natural resources has for the first time shown signs of serious deflation. Its seriousness has been enhanced by the inelastic character of the financial structure. Government ownership has contributed to this inelasticity through such factors as heavy initial cost of constructing railways, through political influence, through construction during periods of high prices, and through the enormous outlays of capital, especially in transportation, which were only made possible through government ownership. Conservative banking policy and heavy continual outlays of dividends on the part of large corporations have made for further inelasticity. The substantial profits of private enterprise have paralleled the heavy fixed charges of government ownership. The heavy inflexible load contrasts sharply with the violent fluctuations of the supporting economic structure. Hitherto the application of mature technique to virgin natural resources has served to support a balanced economy.[18] In the last decade, in spite of the heavy debt assumed on account of the war, Canada was able by virtue of enormous expansion and the improvement of tax machinery to carry and reduce the load. Rising prices in the boom period in the United States stimulated expansion in Canada in new basic industries, and the period of depression and its serious effects on the prices of raw materials has enormously increased the burden of the debt.[19] A balancing of the budget assumes a marked encroachment by virtue of fixed charges on the position of private enterprise, which has already been in evidence. In the interests of a continued balanced economy it is imperative that the revenue system should be drastically overhauled from a short-run

as well as from a long-run point of view, and that the tariff[20] should occupy a less important position.

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[1] *Canada Yearbook*, 1932, and *Monthly Review of Business Statistics*. Unless otherwise stated, statistics in this article are from the above sources.

[2] Excluding exports of foreign produce. Preliminary figures for 1932 include exports of vegetable products in millions of dollars 204, animal products 69, wood and wood products 176, non-ferrous metals 69.

[3] See S. J. McLean, *Tariff History of Canada* (Toronto, 1895).

[4] Capital expenditures, 1923-1931: Canadian National, $456,345,456; Canadian Pacific, $348,776,855.

[5] For example, in the position of labour the president stated in his 1929-30 report, "It was considered unwise and indeed opposed to national interests to embark upon a wholesale policy which would throw many hundreds of wage-earners out of employment, with attendant economic disadvantages." See a comparison with the C.P.R. as to the inelasticity of maintenance. *The Economist*, November 28 and December 12, 1931.

[6] The president stated in his 1929-30 report, "There was a decrease in gross revenue of $16,752,948 (6 per cent.) almost entirely due to the reduced crop in the prairie provinces and to marketing conditions as a result of which a large proportion of the grain is still held in this country unsold. The decrease in revenue from grain shipments alone amounted to $15,509,311, and the non-operation of harvester excursions decreased passenger revenue by $1,250,000."

[7] See D. A. MacGibbon, *Railway Rates and the Canadian Railway Commission* (Boston, 1917).

[8] On this whole point see W. W. Swanson and P. C. Armstrong, *Wheat* (Toronto, 1930), ch. xvii, also W. A. Carrothers, *Emigration from the British Isles* (London, 1929), ch. xvi, D. A. MacGibbon, *The Canadian Grain Trade* (Toronto, 1932), also "The Future of Canadian Export Trade in Wheat," *Contributions to Canadian Economics*, v.

[9] J. E. Lattimer, "Economic Aspects of the Agricultural Problem," *Proceedings of the Canadian Political Science Association*, Vol. III, pp. 134-144.

[10]

TOTAL YIELD OF WHEAT

	Million bushels
1923	474
1924	262
1925	395
1926	407
1927	480
1928	567
1929	305
1930	398
1931	271
1932	431

See T. W. Grindley, "Canada's Foreign Trade in Agricultural Products," *Proceedings of the Canadian Political Science Association*, Vol. III, pp. 123-134.

[11]

MOTOR VEHICLES

	Total	Ontario
1920	407,064	177,804
1930	1,239,889	564,669

TRUCKS, 1930

Total	165,582
Ontario	67,084

[12] See F. W. Chalmers, *Financial Post*, January 9th, 1932. *Per capita* expenditure on roads and bridges by the provinces increased from 58 cents in 1916 to $1.17 in 1921, and to $2 in 1926.

[13] See *Report of the Royal Commission on Pulpwood* (Ottawa, 1924).

[14] Including fuel stations, which produced in 1929 1.5 per cent. of total output.

[15] The number of families on direct relief in Toronto increased from 3,470

in 1928-29 to 4,622 in 1929-30 and 11,040 in 1930-31, the latter year involving an expenditure of $719,000. In 1930-31 it was estimated that 40,000 people (20,000 adults and 20,000 children) were on relief at some one time. Other centres, such as Winnipeg, were much less favourably situated. East Windsor, an automobile town and an extreme case, had over 1,100 families on relief in November, 1931, in a population of 14,241. See H. M. Cassidy, *Unemployment and Relief in Ontario, 1929-32* (Toronto, 1932).

[16] On the problem of provincial revenues and debts see H. R. Kemp, "Is a Revision of Taxation Powers necessary?" *Proceedings of the Canadian Political Science Association*, 1931, pp. 185-201; also J. E. Robbins and Neil Jacoby, *The Problem of Securing Additional Sources of Revenue for Provincial Purposes; Essays on Canadian Economic Problems*, Vol. III (Montreal, 1930), pp. 16-39. Federal *per capita* expenditures increased from $16.22 in 1926 to $34.15 in 1926, and provincial from $6.71 to $15.38; see J. A. Maxwell, "Expenditures of Canadian Provincial Governments, 1916-1926," *Contributions to Canadian Economics*, Vol. III, pp. 41-52.

[17] The extent of domestic capital available is difficult to appraise. An estimate of January 1, 1931, gives a total capital investment of $17,430,000,000, of which foreign investment constituted about 34 per cent. or $6,375,533,000 (61 per cent. U.S., 35 per cent. U.K.). In 1932 Canada will pay $285,000,000 ($160,000,000 interest plus $125,000,000 repayment) in American funds, or at current rates of exchange $335,000,000. On the other hand, Canadian investments abroad were estimated at $1,904,500,000 (possibly $300,000,000 in foreign bonds), but it is difficult to state how wisely securities were purchased by the investment trusts which developed during the boom period. The continued depression of the stock market has, of course, been of first importance. On the other hand, the development of the bond business and the rapid growth of insurance companies since the war are factors which have facilitated the mobilization of capital. Beyond question there has been a marked and sustained shrinkage in the amount of capital available. Bank balances abroad declined from 200 millions to 75 millions in 1931, partly as a result of the floating of domestic loans and the necessity of using domestic funds for seasonal autumn demands.

Canadian securities to the extent of about 50 millions were dumped back on the Canadian market. The following table has been compiled by Prof. K. W. Taylor for the *Financial Post Business Yearbook*, 1932, and is suggestive in spite of its admitted defects, particularly as to movements of capital.

Millions of dollars

	1930		1931	
	Cr.	Dr.	Cr.	Dr.
Merchandise	894	992	600	605
Specie	25	39	56	2
Freight	69	101	51	66
Tourist	279	113	260	100
Interest	88	273	70	240
Insurance Advertisement	33	32	29	28
Canadians employed in U.S.	4	...	3	...
Non-commercial	42	44	24	28
Total	1,434	1,594	1,093	1,069
Net flow of Capital	238	26	26	24
Balance	...	52	26	...

[18] See C. R. Fay, *Youth and Power* (London, 1931), Ch. V.

[19] The decline in prices has been estimated to have increased the burden of the federal debt to the extent of $800,000,000 and all public debts $1,350,000,000. Estimating present prices as 30 per cent. below 1923-27, the weight has increased about $1,000,000,000. These estimates are obviously only stated to emphasize the character of the problem. I am indebted to Mr. D. C. MacGregor for estimates showing a decline in the national income from 5,586 millions in 1929 to 5,123 millions in 1930 and 3,806 millions in 1931. The percentage of total debt charges, dominion, provincial and municipal, to national income has increased from 3.6 in 1928 to 7.1 in 1931. The deficit for the fiscal year 1931-2 totalled $114,234,235. The following abstracts of bank statements suggest the character of the strain being placed on the banks.

Abstracts of Bank Statements, 1931-2
(Millions of Dollars)

	Specie	Dominion Notes owned by Banks	Government Securities	Dominion Notes under Finance Act
Jan. (1931).....	71.23	110.17	396.77	12.5
Jan. (1932).....	64.91	131.11	467.56	45.0
August	55.68	115.28	494.57	29.0
December.....	53.26	153.18	562.36	56.9

	Current Loans	Call Loans in Canada	Call Loans Abroad	Savings Deposits	Total Deposits	Bank-note Circulation
Jan. (1931)....	1,141	192.02	214.80	1,428	1,985	141.44
Jan. (1932)....	1,071	131.17	65.92	1,368	1,875	133.67
August	1,004	114.07	96.39	1,367	2,148	127.77
December.....	964	103.20	91.49	1,378	1,843	127.07

BANK LOANS, 1931-2
(Millions of dollars)

	Municipalities	Provinces
January (1931).....	105.22	26.31
January (1932).....	132.86	43.44
August	123.66	19.41
December.....	111.56	28.27

See also *Economic Journal*, June, 1932, pp. 326-9.

[20] In the development of technique in estimating the burden of the tariff Canada has much to learn from Australia; see *The Australian Tariff: An Economic Inquiry* (Melbourne, 1929); D. B. Copland "A Neglected Phase of Tariff Controversy," *Quarterly Journal of Economics*, February, 1931.

IV. SOLUTIONS

THE IMPERIAL ECONOMIC CONFERENCE

Conferences have displaced, in part, Messianic prophecies in this depression. The results predicted for the Imperial economic conference at Ottawa have reflected directly the extent and intensity of the depression. It is not for economists whose prophecies have recently been the object of much contempt to assume with undue haste the task of predicting the ultimate outcome, but they may perhaps be forgiven if they restrict their activities to describing the points at issue and the general position of one of the parties.

Even an economist may state without fear of contradiction that the enormous debt of the Canadian government is a crucial problem and that the Imperial economic conference will vary in its success directly as the weight of this burden is lessened. The alternatives by which this goal may be reached range from a direct reduction of debt following the hard and honest path of Australia to the multitudinous ways and means of stimulating a revival of trade and industry in order that the burden may be carried more easily. Hitherto the favourite device for reducing the weight of the burden has involved increasing the extent of the burden. By government guarantees, capital imports were stimulated and a coincidence with the upswing of business and an increase in the tariff solved the problem.

The prospects of the success of this policy, which has largely prevailed from the Act of Union to the present depression, have become increasingly doubtful. Enormous supplies of capital have been available to tap the virgin natural resources of the western prairies and the water power, forests and minerals of British Columbia and the Precambrian shield, but the amazing inflow of capital in the last decade and in the period before the war cannot be expected to recur in the future. Capital imports dependent on the application of mature technique to virgin natural resources will become less significant. In the basic industry of wheat production, for example, signs are in evidence that the cream has been skimmed off. It will be increasingly difficult to depend on the tariff, government subsidies and government ownership as methods of increasing the extent and lessening the weight of the burden.

These problems, accentuated by the present depression and short-run factors, such as the poor crop of 1931, have special significance for the Imperial economic conference and for the British Empire. The problem of government debt is crucial to new countries dependent on the production of raw materials and particularly to countries in the British Empire, and must be seriously considered by Great Britain

and the dominions. The fundamental nature of the problem to the British Empire may be considered with special relation to Canada. The St. Lawrence may be regarded as the key to British control in North America. Improvement of that route and addition of supplementary railroads extending eventually to the Pacific were made primarily to supply bulk raw materials, especially wheat, to meet the demands of industrial Britain. The enormous investment of capital for construction of canals, elevators, railroads, towns and industrial equipment essential to the production and transportation of wheat was obtained to a large extent in loans from Great Britain. For example, it has been estimated[1] that British investments in Canada during the period of expansion in western Canada from 1900 to 1913 totalled $1,753,118,000. Mr. F. W. Field estimated that in 1913 British capital invested in railroads from 1905 to 1913 totalled £94,560,823 (Grand Trunk Pacific, £23,649,800; Canadian Northern, £30,070,677; C.P.R., £12,089,400); in government securities, £59,957,500 (Dominion, £48,000,000); municipalities, £34,642,631 (Winnipeg, £6,127,642; Montreal, £6,892,700); industrials, £34,932,461. Substantial loans to the Canadian Northern, to the Grand Trunk Pacific and to the Canadian government for construction of the National Transcontinental involved government guarantees and, in turn, bankruptcy and government ownership. In the post-war period, further heavy investments of capital were regarded as essential to place the Canadian National Railways on a satisfactory basis. In order that interest charges might continue to be paid on capital borrowed from Great Britain, capital was borrowed from the United States, Great Britain and the domestic market. In 1931[2] Great Britain had 887 millions of dollars invested in Canadian railroads and 509 millions in government and municipal securities (of a total of 1,998 millions), and the United States 801 millions in railroads, and 882 millions in government and municipal securities in a total of 3,847 millions. Under government ownership in the past decade we have rapidly increased the extent of the railroad debt in an attempt to decrease the burden.

The seriousness of the problem which has followed with the depression has been accentuated by the character of loans from New York during the intensive speculative boom of the late twenties. Capital borrowed on the New York market under government guarantee has brought problems of exchange, as well as heavy fixed charges, during the depression. The basic commodity produced for export to Great Britain has fallen sharply in price. It is not to indulge in rhetorical fancy to say that, as a result, Canada is being stretched on the rack of the dollar and sterling,[3] if not crucified on the cross of gold.

In spite of the rigid character of government debts incidental to the importance of government ownership and the violent fluctuations in the prices and production of wheat, it has been possible to bring the budget within reasonable distance of a balance, provided the railroads are excluded from consideration. Whereas, in highly-speculative countries such as the United States,[4] the capitalization[5] of periods of prosperity is written down; in Canada, which is strongly influenced by the United States, capitalization in periods of prosperity under government ownership is carried into periods of depression without reduction, and indeed with additions incidental to heavier deficits. In 1930 the total long-term debt of the Canadian National Railways was 2,499 millions (1,169 to the public, and 1,330 to the government), and the deficit 68 millions. In the budget for 1932 the Finance Minister produced a slight surplus without provision for unemployment relief and without reference to the Canadian National Railways.[6]

In general it may be argued that guaranteed interest charges paid to British, American and Canadian capitalists on equipment[7] designed to produce and transport wheat have become a crucial consideration in the maintenance of financial solvency. The effects of these rigid costs strike at the heart of Canadian economic life. Neglect in facing this vital problem may lead to consequences of serious import to the Empire. The crystallizing of capitalism in fixed charges might be compared to hardening of the arteries for the Empire.

As has been shown, it wall avail us little to present the arguments of Sir Alexander Galt in favour of the British investor during the early stages of British capital investment in canals and railroads. In reply to the complaints of Sheffield manufacturers against the raising of Canadian tariffs, he urged that to accept other alternatives "would have been at the expense of English capitalists and legislation, and it would have been but poor consolation for them to know, that, through their loss, Canada was able to admit British goods at 15 instead of 20 per cent." The government in its last budget tacitly recognized that the tariff had practically reached its limit as a source of revenue. With the decline in importance of virgin natural resources, further increases in the tariff tend to press more heavily on the position of the wheat producer.

Repudiation[8] as a solution may be mentioned only as a method to be avoided. Scaling down of the debt by forced conversion loans along lines carried out in Australia involves heavy, direct sacrifices on Canadians to maintain fixed payments to the United States and Great Britain. Capital reorganization of the railroads has involved difficulties with Grand Trunk Pacific security holders and the Vermont

Central, and it is doubtful whether this device could be used extensively, particularly since it will be difficult to abandon the policy of encouraging capital imports as a solution to problems of the depression. It has been argued that, since Canadians are in a position to export capital and consequently will have little demand for imports of foreign capital in the future, such plans could be advocated with immunity, but the difficulties are too numerous to warrant analysis. An appeal for leniency to British investors or to American investors will find little support. The Imperial Conferences of 1926 and 1930 completed the chain of developments which began with responsible government and ended with complete autonomy, and involved the right to create and pay our own debts. Imperial cost accounting, stimulated by Gladstonian liberalism, has reached its logical end in the allocation of costs to the independent portions of the Empire. The problem of the Imperial Conference is to adjust economic freedom to political freedom.

Failing to enlist the mercy of British capitalists, it has been urged that Great Britain should provide a sheltered market for wheat and thus enable us to carry the burden of fixed charges. It has been estimated in the grain trade that the preference to Canadian wheat equals about one cent a bushel. The Continental market will become increasingly important in the disposal of Canadian high protein wheat, and Canada should be in a position to take every advantage against world competitors of available markets. Preferences may impose too heavy a burden on Great Britain as a nation deficient in raw materials, particularly if it imposes penalties on supplies of wheat and other products from the outer empire, for example, Argentine and the Baltic. However, the interests of the consumer are strongly protected by such organizations as the Co-operative Wholesale Society. The strength of these interests was evident in the determined attacks on the Canadian wheat pools. Strong vested interests in Great Britain, which represented the sugar plantations of the West Indies and the timber trade of British North America, are not in evidence in the later days of wheat. Vested interests have grown up in relation to world trade rather than Empire trade.

The possibilities of reducing the burden of fixed charges by appealing to investors appear to be slight. The Report of the Railway Commission has involved consideration of methods of carrying existing debt more easily rather than reductions of debt. Reorganization of Canadian National capitalization will have little effect on the burden of debt to the Canadian government.

We are forced to consider, as final alternatives, the possibility of imperial preferences and imperial currency as devices by which the burden of fixed charges may be carried more easily if not reduced. The tying up of the dollar to sterling[9] or

to the American dollar involves considerations which include the policy of Great Britain in stabilizing sterling, the effects of the reflation policy in the United States, the possibility of managing Canadian currency with inadequate machinery, manipulation of the tariff, and as a result of these factors the uncertain costs of stabilization. Imperial preferences have been conceded a position of first importance in most discussions of the possibilities of the Imperial Conference. Following the classical analysis, steps toward freer trade will increase the capacity of all countries concerned to bear the burden of the debts. Increased competition[10] from Great Britain in disturbing the present rigidity of prices and in forcing the prices of manufactured products into line with agricultural prices might contribute materially to increase in industry and trade and, in turn, lower the costs of production of staple products. On the other hand, this serious problem of rigidity involves numerous interrelated factors, including railway rates which are, as has been shown, closely linked to the heavy fixed charges incidental to Canadian National debt, combines, currency and employment. The intricacies of the problem suggest that increased trade with Great Britain is probably less crucial than has been generally supposed. It is an internal problem which demands an energetic and immediate attack. The effects of concessions involving inroads on the position of industries already seriously weakened by the depression, and particularly marginal industries with little strength to resist aggression, must be carefully considered.

The final alternative is the widening of markets for Canadian goods. An increase in markets in Great Britain and the Empire for Canadian goods is more significant to Canada than an increase in markets for British goods in Canada is to Great Britain and the Empire. It involves a continuation of the policy of raising the tariff wall against the United States and opening both ends at the Atlantic and the Pacific to trade with foreign countries. A continued migration of capital in the form of branch plants from the United States and further exploitation of natural resources in terms of water power and mineral resources, and especially the former, for example, in the St. Lawrence waterways, may enable us to continue the policy of increasing the debt to lessen the burden. We may continue to meet the heavy fixed charges of our railway debt. Having exhausted our more available resources, we may continue to thrive by sharing in the exhaustion of the resources of less industrialized parts of the Empire and the world. Our mild, imperialistic policy will look for new territory. British imperialism was brought face to face with Canadian imperialism at the Imperial economic conference.

The success of the conference in stimulating trade as a means of easing the pressure of fixed charges payable on capital invested in plant, essential to the

production of foodstuffs for industrial Britain, is seriously limited by a continuation of the depression. There remains the task of attempting to reduce the burden of the charges on debt due to the United States—a particularly urgent task as a result of the developments of the last decade. Reciprocal arrangements to this end would increase trade and eliminate losses incidental to the breaking down of old channels and the establishment of new channels.

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[1] J. Viner, *Canada's Balance of International Indebtedness* (1900-1913), (Cambridge, 1924), p. 126. Sir George Paish suggested in December, 1913, a total of $500,000,000. American investments totalled $629,794,000. See also F. W. Field, *Capital Investments in Canada* (Toronto, 1914).

[2] *Financial Post Business Yearbook*, 1932.

[3] Payment of interest and principal of bonds held in Great Britain, payable in sterling, is a mitigating factor with sterling below the Canadian dollar.

[4] See R. H. Mottram, *A History of Financial Speculation* (London, 1929).

[5] "We find that in the territory in the United States (west of the Mississippi River) and in the period under consideration, there have been 191 reorganizations of railway properties. We find that $874,000,000 have been eliminated or lost, in those reorganizations, and securities to the amount of $1,141,000,000 were stepped down from a superior to an inferior position in the reorganization. If those losses were subject to interest—as has been the case with our own deficits because we are charging interest at 6 per cent. on our deficits—the total figure which might be considered comparable to the deficits of the Canadian National Railways and its liability to the government would run into a colossal figure—I think it is $3,250,000,000. In other words, what happened in the United States was that it was a 'loss' which was borne by the investors—by the public. In Canada the government for good and sufficient reasons stepped into the breach and carried the burden, which, as I said, in the United States was carried by the public." Evidence of Sir Henry Thornton, Select Standing Committee on Railways and Shipping, May 1st, 1929.

[6] It will be difficult to avoid a deficit of 150 millions.

[7] The case may be narrowed to railroads, but might be extended to include a substantial proportion of interest charges due to other forms of government debt—provincial, municipal and Dominion.

[8] The methods followed by some of the United States and South American republics have been generally regarded with distaste. It would be difficult to subscribe to the grounds for repudiation of the governor of Mississippi, for example. "The Bank (i.e., of the United States) has hypothecated these bonds and borrowed money upon them of the Baron Rothschild. The blood of Judas and Shylock flows in his veins, and he unites the qualities of both his countrymen. He has mortgages on the silver mines of Mexico and the quicksilver mines of Spain. He has advanced money to the Sublime Porte, and taken as security a mortgage on the Holy City of Jerusalem, and the sepulchre of our Saviour. It is for the people to say whether he shall have a mortgage on our cotton fields, and make serfs of our children," cited L. H. Jenks, *Migration of British Capital to 1875* (New York, 1925), p. 368. The dismissal of Premier Lang in New South Wales may be regarded as an illustration of the intolerance with which repudiation is considered.

[9] See J. F. Day, "Empire Currency," *Proceedings of the Canadian Political Science Association*, 1932, cited *Financial Post*, May 28th, 1932; also L. Robbins. "The Ottawa Resolutions on Finance and the Future of Monetary Policy," Lloyd's Bank letter, October, 1932.

[10] See F. A. Knox, "Empire Trade and British Industry," *Queen's Quarterly*, February, 1932, pp. 46-61. Also "Imperial Preference and Empire Economic Development," Bank of New South Wales letter, November, 1932.

INDEX

TRANSCRIBER NOTES

Mis-spelled words and printer errors have been fixed.

Inconsistency in hyphenation has been retained.

Footnotes have been relocated and renumbered to allow for a non-page layout. Page numbers in the index are unchanged, if they pointed into a footnote, the footnote may be in a significantly different location.

[The end of *Problems of Staple Production in Canada* by Harold A. Innis]