



THE ECONOMIC EFFECTS OF THE WAR
ON THE
MARITIME PROVINCES OF CANADA

by

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INTRODUCTION

Formulation of Canadian post war policies will be greatly facilitated if the problems peculiar to the five large economic areas of the Dominion are properly understood. Pertinent information is unfortunately still rather fragmentary. Much more is known about the Canadian economy as a whole than about the economic conditions of its constituent parts.

Our expectations concerning the war make the present a proper time for stocktaking. We must know where we stand before setting out for a new destination. When planning improvements for the future, we must have a thorough knowledge of all the present day conditions which are likely to be affected. The task is all the more difficult as we can only depend upon pre-war experience to a limited extent. Under the impact of the war large segments of our economy, as well as many of our social concepts, have been transformed. When looking for guidance we must evaluate the character and extent of these changes. In view of the composite nature of the Canadian economy such a task it would seem may be best accomplished through a regional approach.

To perform this work for the Maritime Provinces is the purpose of the present study. It is a piece of planned research carried out under the auspices of the Dalhousie Institute of Public Affairs. A number of scholars representing different branches of the social sciences have cooperated in the study, although a major part of the work was done by Professor B.S. Keirstead, formerly of the University of New Brunswick, now of McGill University. The necessary funds were provided by grants from the Rockefeller Foundation and Dalhousie University.

The plans were laid for the project and research work started early in 1941 when it had become clear that the conflict would be a prolonged one, and was likely to have far reaching effects on the social fabric of the Maritimes. Thanks to the early inception of the study it was possible to make detailed observations of the gradual transition from the peace to the war economy, of the change in consumption habits and in the cost of living, and of other relevant factors. A number of interim reports were published as the work progressed; on war contracts, on war financing, on household budgets and on part time farming. Now, as plans are being laid for Maritime postwar policies, it seems the proper time to bring the study to a conclusion and to publish its main findings.

The study is devoted to the basic problems of economic regionalism. In the pre-war period economic rewards tended to be

lower in the Maritimes than elsewhere in the Dominion. It is shown in the study to what extent this situation has changed during the war years. Will it be possible to maintain the improvements which have been achieved? The study, though not directly concerned with postwar policies, gives a great deal of attention to this question.

L. P. DUFF

PREFACE

Three years ago the Institute of Public Affairs of Dalhousie University asked me to conduct an inquiry of the economic effects of the war in the Maritime Provinces of Canada. Naturally it was never intended that the study should attempt to be either a detailed economic history of the war period or a full economic analysis of Maritime problems. My terms of reference indicated that the work should be aimed at problems of post-war adjustment and should seek to assess the more significant events of the war period with the object of informing policy decisions when they came to be made. The present book is the result of this inquiry. It is necessarily partial and incomplete, and many will no doubt differ from me as to the selection of and emphasis on significant events. While no attempt is made to discuss policy directly, the aim of the present work is to provide information that will assist those who bear the responsibility of policy formation. Since the study has this practicable purpose I have attempted to restrain discussion of statistical problems and methods to a minimum and to keep the theoretic argument from intruding itself in too technical terms.

Previous publications emerging from this study have discussed some of the matter here reviewed in summary form. This is particularly true of the statistics of Dominion war contracts, which were developed in a Bulletin entitled "Dominion War Contracts in the Maritime Provinces", published by the Dalhousie University Institute of Public Affairs. A brief summary of the present work for those who wish to get the gist of it in short order has also been published as a Bulletin by the Institute under the title "The Impact of the War on the Maritime Economy".

I have received a great deal of most generous cooperation and assistance in the preparation of this work, and it seems to me most ungracious not to make suitable acknowledgements; but I have been asked to economize on space as far as possible, so that I am able only to recite the names of those who have helped me, assuring them that this meagre recognition is no measure of the sense of gratitude I feel.

The Dalhousie Institute of Public Affairs has initiated the study, and its committee of direction has always shown liberality in every way in the conduct of the research.

The Dominion Bureau of Statistics assisted most generously in the compilation of the Census of Industry material. I owe a debt also to many officials of the Bureau for advice and suggestions, particularly to Mr. A.L. Neale, in whose Branch I was afforded facilities of research, and to members of his staff.

The Pulp and Paper Institute of Canada, and the University of New Brunswick also offered me library and other facilities of research, and I received assistance from government officers in Halifax, Charlottetown, Fredericton and Ottawa and from many Maritime business men and trades union officials.

The staff of the Institute at Dalhousie, of the Dominion Bureau of Statistics, especially Miss L.F. Beehler, graduate students at Dalhousie and McGill universities, members of the faculty of Forestry at the University of New Brunswick and Dr. G.V. Haythorne, Secretary of the Nova Scotia Economic Council, are among those to whom I am indebted. My debts to Professor Bates for his chapter on the Fisheries and to Professor Lattimer for his work on Agriculture are sufficiently obvious.

The Canadian Social Science Research Council made a grant-in-aid of research which enabled us to finish the research at a time it was like to founder from lack of funds.

My wife assisted me enormously with work on the statistical compilations, graphical work, precis work on reports and general secretarial assistance and it is a pleasure to make this public recognition of her help.

This note has already run on too long, and there are many who, in lesser ways, have also contributed. In expressing my gratitude to these as to the others I make slight acknowledgement of the debt I owe for all this generous assistance, but for the final results, with all their imperfections, I have to accept responsibility.

B. S. Keirstead
Montreal. 1943.

ERRATA

- Page
- 6 the conversion factor from 1926 to 1935-39 is 114.5
not 1145.
- 9 line 38 - read - "increase; but, because of the decline
in apple shipments, the total tonnage"...
- 50 Summary Table I. For net growth in twenty years (col.14)
industry 3b read "-2" for "-5".
- 96 line 9 for "dispause" read "diapause".
- 100 line 17 for "a tree a generation" read "a tree generation".
- 113 footnote 91 for "Canadian" read "Canadien".
- 133 line 25 for "hermatite" read "hematite".
- 141 line 7 for "appears" read "appear".
- 189 line 6 for "Order in Council" read "Orders in Council".
- 220 last line of second paragraph read "disbursed" for
"disturbed".

Chapter 1

INTRODUCTION - THE MARITIME ECONOMY AND THE WAR

Section 1. Formulation of the Problem.¹

Obviously the history of the economic effects of the war on the Maritime Provinces of Canada must be written by the economic historian of the future. The record of these effects which is written while the war is still in progress must be at best partial, foreshortened by a point of view which is contemporary and necessarily distorted as is the diver's view of objects seen close to and under water. The facts, too, are but incompletely known, the processes now in motion may work out in directions at present unguessed. There may still be great events of war-making and peace-making which will impinge on Canada and all its provinces in a way we cannot hope to foresee. If we attempt to give more than a mere summary of the statistical record - and to assemble that would be a work of little service to our knowledge of what is happening - we are necessarily venturing on the uncertain ground of economic prophecy and must not pretend to the more solid task of historical analysis and interpretation.

The statistical record itself is not the objective or actual certainty that some believe it. Facts are statements of events and even the quantitative statement of events is subject, altogether apart from the human liability to error, particularly to be remembered in wartime, to the bias of selection. What meaning, for example, is the economist to attach to value of output or national income figures in wartime, when many of the constituents of these magnitudes are arbitrarily priced? Can you reliably compare these totals with pre-war figures based on free market valuations? A "fact" is always as it is seen or known, so that in the most barren abstract there remain the elements of observation, judgment and interpretation. Thus we must believe, in some measure, in our own judgment, treat our observed data as honestly as we can and seek to interpret the events as they appear to us, keeping in the forefront of our minds, and drawing to our readers' attention, the knowledge that the appearances we now observe may be deceptive and, at the very best, are bound to be modified by present events as yet unapparent, and by future events whose shape and mode we cannot now foresee.

¹ I have eliminated from the main text any discussion of problems of method. Some comments on our methodological difficulties are offered in a report made to the Committee of direction.

Knowing this, what, then, is our problem? How are we to state and assess these events now apparent in the Maritime economy? Are we to suppose the Maritimes a separate, isolated, regional economy in which we can observe, as it were in abstraction, the quantitative manifestations of wartime stimuli in the form of increased output, production, employment, income, carloadings and trade? Such a task, appealing in its comparative simplicity, would have a certain objectivity in its somewhat unreal level of abstraction, but it would surely not inform our judgment as to post-war policy. Now I can think of no reason for undertaking such a study as this that is not ultimately a concern with post-war policy. As economic history the study is ill-timed, bound to be unsatisfactory in every way. A purely statistical record could more easily and quickly be prepared by official agencies. This study can have only one purpose and that is, not to discuss policy, not to formulate policy, that is up to our citizens and their representatives, but to provide as reliable an interpretation of facts as possible to inform policy, to make its formulation as wisely and soundly based as, in the historical moment, we can. That being so, we conceive our problem to be to state and assess the effects of the war on the Atlantic Maritime region of Canada, to see that region as a part of the national whole, experiencing within the whole the effects of this war. The assessment must be an attempt to see how far the wartime effects are permanent, how they affect the basic industrial and economic problems of the region, how they modify these problems, create new ones, how they affect relations of trade, of industry, of finance between the region and the national whole, how they will create political problems to be faced and solved. In a word we need to see the effects against the background of prewar development, realize their potentiality to change that development in direction, mass and impetus, and assess the nature of the problems so created.

We believe it to be a mistake to suppose that the Maritimes can be treated as a unit separate from the Canadian economy. They have their regional peculiarities and distinction, which we shall try to expose, but they are politically and economically a part of the Dominion of Canada. As such they have felt the wartime effects of Dominion policy, have felt the effects experienced by the entire nation, though sometimes these effects have been moderated, amplified or otherwise distorted by regional peculiarities. But the war has had a national impact; it has, for one thing, at least temporarily, resulted in economic and political unification of Canada. The future of the Maritimes lies, too, within the unified nation, and one of the most important questions of policy will concern relations between provinces and Dominion. We must therefore see the wartime effects on the provinces in relation to the Dominion as a whole, see the comparative effects, the effects on the location,

regional development and competitive position of industries, on the general position of the Maritimes within the Federation. Thus we explain the attention given throughout this work to comparisons between the Maritimes and the Dominion as a whole.

As an integral part of the Canadian nation, the Maritime provinces have experienced the impact of the war as it has affected the whole Dominion. The great expansion of income, the "industrial revolution", the changes in the structure of industry, the hectic activity in construction, transport and shipping, the emphasis on wartime crops, the dislocation of the capital market and the restrictions on the consumers' market have all been felt in varying degrees in the Maritimes.² As we shall shortly notice Maritime experience ran parallel with that of the nation as a whole, but certain peculiarities of the Maritime region gave a somewhat different emphasis to certain developments. In shipping and construction, for example, the Maritime expansion was more rapid than in the country as a whole, and in manufacturing it was less marked.

The regional peculiarities of the Maritime provinces which determined the specific economic incidence of the war in this area are their geographic situation and their natural resources. Lying as they do not only athwart the sea approaches to central Canada but on the flanks of the American Atlantic states they are of the greatest strategic importance. Historically these provinces have always been the key to seapower in the western North Atlantic, a fact recognized by the British when they won them from the French and settled them with soldier colonists and United Empire Loyalists. In this, as in every British naval war since the 18th century, British sea power has had a western base in Halifax. This wonderful port is not only naturally of great strength but possesses in Bedford Basin an ideal inner harbour for the making up of convoys. In this war to the advantages of Halifax, and, to a lesser extent, of Saint John, as winter (ice-free) ports, have been added their greater comparative security from the submarine menace, which definitely threatened the St. Lawrence route. Thus the greater part of Canada's vast exports to Britain have passed through the Maritime ports. This has imposed a burden not only on port facilities but on railways and every branch of transport services. The strategic importance of the ports has also required heavy concentration of troops and the concomitant construction of defence works and accommodation. Into these developments we must shortly inquire more closely.

The resources of the Maritimes are principally the sea itself, coal and forests. The concentration of the Maritime economy about

² A study of Canadian economic war policy, made in connection with this research was published by the Dalhousie University Institute of Public Affairs under the title: "Canadian Economic War Policy".

these resources and the comparative lack of a varied and diversified manufacturing industry and of an independent agriculture has meant that the wartime development of new industries in Canada has passed over the Maritime region as a suitable situs (there were also strategic reasons why the Maritimes were not selected for defence industries) and so wartime industrial developments in the Maritimes took the form of expansion of the existing industries rather than the establishment of new ones. We shall have to ask, therefore, how the wartime industrial revolution has affected the localisation and regional concentration of Canadian industry and how far it has modified the regional dispersal to the disadvantage of the Maritime region. In particular we must inquire more specifically into the nature and probable permanence of the effects on the major Maritime extractive industries, viz., those based on the forests, those based on coal and iron ore, those based on the sea and agriculture.

Thus the form of the present work emerges. We begin with an examination of the comparative expansion of income and activity in the Maritimes and Canada as a whole. The statistical indices will give us both a quantitative measure of wartime effects on various economic activities but will also suggest those lines of activity in the Maritimes that have experienced special and significant development. From this beginning we must proceed to interpret the significance of the wartime changes against the background of the Maritime economic structure. How do these effects, as we discover them, affect the balance of the Canadian industrial structure, the regional concentration and dispersal of industry? Do the war changes suggest further concentration or devolution of Canadian industry? Can we discover any balance or equilibrium in the localisation of Canadian industry, and, if so, how has the war affected this equilibrium? To these questions our third chapter is devoted. We then turn to a more specific examination of the war effects on the major extractive and processing industries of the Maritimes and the probable localisation effects within these industries. Our final chapters attempt to assess the employment effects of the industrial changes and the consequent policy implications. That this approach is partial and highly selective we readily admit, but we hope it has the merit of developing a general localisation thesis which may be of some help in interpreting the significance of the wartime changes.

Chapter 2

THE WAR STIMULUS

Section 1. The General Indices of Economic Activity.¹

The object of this chapter is rather to give some quantitative notion of the increase in economic activity experienced since the war in the Maritime Provinces, than to analyze the nature of this growth so as to show in what areas and industries it has been most pronounced. Nor do we at this stage mean to attempt to evaluate its significance or permanence.

The statistics that we have are partial and inadequate, yielding in total a general notion of the comparative degree of stimulus to economic activity in the Maritimes, but telling us little of the geographic, social or industrial distribution of the stimulus, and practically nothing of the causal order through which the stimulus is transmitted, nothing, that is to say, that permits the application of the method of the multiplier to the analysis of the process. The general economic indices of volume of production, income, employment and bank debits show the degree of increased activity, production and employment. Carloadings tell us something of the relative weight of the impetus in different industries, and building contracts and the statistics of war contracts tell us something of the distribution of the stimulus by regions within the Maritimes. These latter statistics also suggest something of the initial impetus of increased wartime investment, but unfortunately, in the absence of statistics of regional savings, of the regional export-import balance and because of the impossibility of distinguishing directly from the statistics themselves primary and secondary investment the value of the regional multiplier can neither be inferred nor computed.

The economic index of volume of business shows for the Maritimes an increase for 1940 over 1939 of 22 points or about 18%, for 1941 of 56 points, for 1942 of 75 points or about 60%. The seasonal decline in the late spring and summer months, chiefly attributable to the seasonal decline in lumbering, ports and railway traffic, was offset by the general expansion in 1940 and 1941, but was again pronounced in 1942, when winter activity reached the peak of probable full employment. For Canada as a whole the advance was constant, almost without seasonal fluctuations, and, taking August as a "representative month" - it is approximately the average for each year - it was as follows:

¹The basic data of this section are contained in the statistical Appendix to this chapter and all sources are declared at the foot of each table.

August 1939	109.3
" 1940	130.2
" 1941	172.4
" 1942	205.7
February ¹⁹⁴³	227.3

* August figures not available.

These indices are not directly comparable with those shown for the Maritimes, because in the case of the Maritime index the base year is 1926, whereas for Canada as a whole the base period is the 1935-39 average. The conversion factor from 1926 to 1935-39 is 1145 ~~percent~~. The percentage increases, however, are directly comparable and run as follows:

<u>Percentage increase in business activity over 1939</u>	<u>Maritimes (approximate)</u>	<u>Canada (approximate)</u>
1940	18	19
1941	47.5	57
1942	61	85

It would thus appear that in general, marked though the wartime stimulus in the Maritimes has been, it has been considerably less than for Canada as a whole, and, since the Canadian figures include both the Maritimes and the Prairies which reduce the national average, very much less great than for Ontario and Quebec.

[The regional and national income figures, based on income payments to individuals, reveal a different comparative trend. In the Maritimes as a group the regional income increased from \$309,084,000 in 1939 to \$495,280,000 in 1942, an increase of about 60%, the largest increase taking place in Nova Scotia, most industrialized of the three provinces. For Canada as a whole the increase was from \$4,324,429,000 in 1939 to \$6,861,480,000 in 1942, an increase of about 59%. But this war for Canada has been more an industrial than an agricultural one. In the industrial provinces of Ontario and Quebec the percentage increases in provincial income have been 64% and 60% respectively. The probable explanation of the apparent contradiction between the equal proportional rise of Maritime and national income figures and the disproportionate increase in national as compared with Maritime business activity is that the Maritimes as a defense area have had a relatively large concentration of troops with their dependents, and income payments have consequently been increased more in proportion than local business and industrial activity. Moreover Maritime wages were abnormally low and wartime increases in wage payments there have been more than in proportion to increased employment and activity. Thus the wartime increases in income received and in welfare which the Maritimes are experiencing are probably not supported by a proportionate increase

in business activity and industrial opportunity. This tentative conclusion becomes more evident as we proceed with our analysis.

In the Maritimes, bank debits to individual accounts, one of the indices of expansion which we have separately recorded, fluctuated seasonally in 1939 between a low of \$43,000,000 in February and a high of \$69,000,000 in October. In 1940 the low in March was \$61,000,000 and the high in November was \$78,000,000. In 1941 the low of February was \$60,000,000 and the high in June was \$96,000,000. In 1942 the February figure was \$78,000,000 and November ran as high as \$108,000,000. If, for purposes of comparison, we let the index number 100 equal the average range in 1939, then the index for 1940 would be 125, for 1941 would be 138, and for 1942 about 145. The national index for bank debits with the base 1935-39 rose to 165.2 in March 1942, and to an average of just under 140 for the first five months of 1942. This would indicate that the increase in bank debits in the Maritimes as one would expect from income figures had been at least as rapid as in Canada as a whole.

Building permits are of course subject to wide, seasonal fluctuations. The average monthly permit for the years 1937 and 1938 and for the first eight months of 1939 appears to have been in the vicinity of \$4,000,000 for Canada as a whole, and for the Maritimes it appears to have been about \$225,000. For Canada as a whole the average for 1940 increased to about \$5,000,000 and in 1941 to \$8,500,000 or \$9,000,000. In the Maritimes the average monthly contracts in 1940 were around \$325,000 but in 1941 had increased to nearly \$600,000. The most marked increases were in the cities of Halifax and Moncton. These figures again suggest that the Maritime stimulus has been at least as great as in Canada as a whole. Thus, while general industrial activity increased more rapidly in the Dominion than in the Maritimes, construction in a defense area such as the Atlantic provinces improved, as one would expect, quite as rapidly as in the industrial areas of the centre; but as we shall see, it was a different kind of construction.

Employment figures are also subject to wide seasonal fluctuations. In 1939 in the Maritimes the index fluctuated from 100 to 123, in 1940 from 112 to 134, and in 1941 from 130 to 188. The biggest gains were in Nova Scotia, where in 1941 and 1942 in several months the index ran over 200. New Brunswick also showed a substantial gain in 1941, but Prince Edward Island showed a very slight and unstable improvement. The employment index for Canada as a whole varied between 105 and 124 in 1939, between 112 and 140 in 1940, between 134 and 169 in 1941. Once again, the gains registered in the Maritimes appear to be as great as those for Canada as a whole. The levelling out of the index and the virtual disappearance of unemployment in trades unions indicate the gradual achievement in 1942 of full employment of labour. Since agricultural employment is not

included in the index it is probable that much of the new employment in the Maritimes came from the farms.² Though this would to some extent also be true of Ontario and Quebec we are inclined to believe that in the Maritimes there was a greater transfer of employment from agriculture to industry and consequently a somewhat smaller net gain in new employment. A fuller analysis of the employment situation is contained in later chapters on separate industries and in Chapter 8.

Section 2. Carloadings.³

We propose to obtain some information about the stimulus received by particular industries and particular districts from an examination, first of carloading statistics, and, second, of Dominion contracts placed for war orders. Carloading figures are subject, like others we have examined, to seasonal fluctuation. The range of variation for total freight, loaded and received from foreign connections, is generally in the Maritimes at its low during the winter months and at its peak in the summer. In the peacetime years of 1937 and 1938 the range was from 700,000 tons to 1,100,000 tons (1937) and from 630,000 tons to 825,000 tons (1938). In 1939 the range was from 575,000 tons to 1,000,000, and during the last three months of the year the effect of the war was evident in the fact that there was a very slight seasonal recession. In 1940 the range was from 850,000 to 1,000,000 tons, in 1941, from 900,000 to 1,100,000 tons, and in the first three months of 1942, in spite of the fact that they were winter months, the total tonnage was never less than 1,000,000, and in March reached the high peak of 1,200,000. The range for the year was between about 1,000,000 tons and about 1,400,000 tons. A rate of increase of approximately the same magnitude is shown for Canada as a whole. The total of revenue freight loaded in Canada increased from 62,290,582 tons in 1939 to 91,864,796 tons in 1942. In the Maritimes the increase for the same period was from 9,172,000 tons to 12,433,000, an increase, like that of overall industrial activity, of which it is a measure, considerably less great in the Maritimes than in the whole nation.

The effect of the war on the three provinces considered separately is differently reflected in the carloading statistics. In Prince Edward Island there was little improvement in midsummer shipments, but there was a gradual though not very marked increase in autumn and winter shipments of agricultural produce. In Nova Scotia

² Cf. Chapter 6.

³ The basic data for this section are in summary form contained in the statistical appendix to this chapter.

the general tonnage increase was most marked, and took the form of a seasonal levelling off. The peak months in Nova Scotia were about as high in 1937 as in 1941, though not as in 1942, but the low months were very markedly lower. In New Brunswick the improvement was reflected in a general increase for all months. In Prince Edward Island, as we have said, the chief increase was in agricultural products which form, in any case, far and away the largest single item on the Prince Edward Island account. In Nova Scotia the most important single item is mine products, and these, for reasons which we shall later attempt to explain, do not show any pronounced advance in 1942 over 1937, though they are definitely better in 1942 than in 1938 and 1939. The general category of "Manufacturing and Miscellaneous" shows the most pronounced advance for all three provinces taken together. The advance in 1942 over 1939 was in the neighbourhood of 50% for Prince Edward Island, 75% for Nova Scotia, and 53% for New Brunswick. Forest products, which are of importance only in Nova Scotia and New Brunswick, showed an improvement in Nova Scotia of about 50%, but in New Brunswick they registered a gain in 1942 over 1939 of 133%. Animal products do not form in the Maritime provinces an important category of railway freight. Nevertheless, a significant change in Maritime agriculture is reflected in the figures of animal product shipments. In 1937 Prince Edward Island loaded and received from foreign connections a monthly average of 580 tons, Nova Scotia a monthly average of 1,430 tons and New Brunswick a monthly average of 1,170 tons, a total monthly average for the Maritimes of 3,180 tons. In 1941 the Prince Edward Island monthly average was 840; the Nova Scotia 1,860, the New Brunswick 1,990, yielding a Maritime monthly average of 4,690 tons. The change in agriculture is more evident if we compare tonnage loaded of all agricultural products with tonnage loaded of animal products only. In Prince Edward Island animal products loaded increased from 8,254 tons in 1939 to 12,157 tons in 1942, an increase of 50%. In Nova Scotia the increase was from 9,659 tons in 1939 to 12,911 tons in 1942, an increase of about 33%, and in New Brunswick the increase was about 55%, from 11,074 tons in 1939 to 17,320 tons in 1942. But tonnage of all agricultural produce, for the same period, increased from 104,598 tons to 158,597 tons in Prince Edward Island, about 50%, decreased; because of the decline in apple shipments, the total tonnage decreased from 79,264 tons to 60,235 tons in Nova Scotia; and, in New Brunswick, increased by only 25% from 202,633 tons to 254,890 tons. Thus on the assumption that carloading statistics reflect the level of activity in an industry, the increase in animal production for the Maritimes was nearly 50%, made up of an increase of 33% in Nova Scotia, 50% in Prince Edward Island, and 55% in New Brunswick. Thus for the Maritimes as a whole and for the provinces of New Brunswick and Prince Edward Island especially the rate of expansion in livestock production and animal products was the most significant of any industry under the stimulus of war. It represented a real shift of enterprise in agriculture, whereas the big increase in, say, forest products in New Brunswick was the rapid expansion of an already highly developed industry. We know of course that the Dominion

government and the Provincial departments of Agriculture deliberately encouraged production of animal products, particularly hogs and beef cattle, and the expansion which our figures suggest must in part be attributed to official inspiration as well as to the market demand. The importance of this development in the long run as distinct from its immediate importance in the war effort will become clear when we come to the examination of Maritime agriculture in a later chapter of this study.

Thus statistics of carloadings strongly suggest that the most pronounced gains under the stimulus of war were registered by forest products in New Brunswick, by animal products in New Brunswick and Prince Edward Island, and by manufacturing, particularly in Nova Scotia and New Brunswick.

Section 3. Dominion War Contracts.⁴

The spending of the Dominion Government, in wartime the greatest single purchaser in the economy and one that by 1942 was spending half the national income, provides, naturally, the initial or primary impetus for wartime expansion. Thus a knowledge of the distribution, geographical and industrial, of this spending is of first importance in the quantitative analysis of the war stimulus. Though the figures we are about to examine are for only the first two years of the war, and though they represent only the spending of the Department of Munitions and Supply, they are nevertheless significant in indicating the trend of the spending towards certain industries and areas and, though incomplete, they represent the great bulk of government wartime spending apart from pay. The total magnitude of

⁴ This section is based on a study made in the course of this inquiry and published by the Dalhousie University Institute of Public Affairs under the title "Dominion War Contracts in the Maritime Provinces". The tables, compiled for that study, are long and complex, and we have avoided reproducing them here in the interest of wartime economy. We have selected here the significant figures for comment, and have included Summary Tables in the statistical appendix to this chapter. Readers interested in greater detail can always obtain the original bulletin by writing to the Institute of Public Affairs, Dalhousie University. The figures are complete only to the end of August 1941, at which time the Department of Munitions and Supply ceased publication of contracts. There is a slight discrepancy between the figures shown here and those published in the Bulletin; a discrepancy which arises from the fact that the Bulletin was published before the final figures for 1941 were available. Thus all our totals now published are revised totals, as to the end of August 1941, and run somewhat higher than those shown in the Bulletin.

this spending in the Maritime provinces to the end of 1941 was \$56,000,000, a small proportion of the total expenditures of the Department but a significant amount when considered in relation to the Maritime regional income of \$309,000,000 in 1939. The increase in regional income to 1941 was \$114,000,000 so that the Dominion wartime spending was about half the total increase in regional income.⁵

Dominion Government war orders have represented, then, in total amount a very important stimulus, but a detailed examination of the orders shows their peculiar distribution throughout the various industries and regions of the Maritimes. Over the two-year period, during which details of contracts were published and which we were consequently able to study, of a total of all war spending of \$56,000,000, \$29,000,000 or 51% was for construction. This war construction on government account amounted to 67% of the total construction for that period in the Maritime provinces. Thus in this single basic economic activity the stimulus of war orders was tremendous, yet we discover an overall increase in construction of only some 170%. This appears very large for the moment, but a little mental arithmetic will show that it is really rather surprising, for if government construction for war purposes represents two-thirds of the total construction and if total construction has increased by less than 200%, this means that other construction has fallen off. This actually is so, and one of the causes of reduction has been the war, for the provincial and municipal governments have considerably reduced their spending on road and bridge construction, and private industry has been unable to replace or build new plant unless engaged in war production. Thus the total effect of the war on construction has not been entirely positive, and the stimulus of war spending has not been carried over into other types of construction. However, the importance of construction as an impetus to increased economic activity is not thought, in multiplier theory, to be reflected so much within the field of construction itself as in the construction goods industries, and ultimately in secondary manufactures. Wartime construction in the Maritime provinces has definitely stimulated the lumber industry. This is reflected in part in the car-

⁵ We must be on guard, of course, against suggesting that the Dominion war orders constitute an actual part, to the extent of the increase, in income produced. The increase in income received is net, and does not include any double counting, and is calculated by summing the net value received by individuals from all economic activity, whereas the government war orders represent the value of goods delivered irrespective of the cost and origin of raw materials, many of which, of course, came from outside the Maritimes. We also must remember that many orders for war goods which ultimately were produced in Maritime plants, were placed with head offices in Montreal and Toronto and do not show in our figures. In the text we are not, then, saying that of the \$114,000,000 increased income, \$56,000,000 are represented by Dominion Government war orders. We are simply placing the two figures in juxtaposition so as to show the relative weight and importance of the stimulus received from the government war orders.

loading figures we have just examined and in part shown by the large orders placed in New Brunswick for lumber and building supplies. But the construction of the Dominion Government in the Maritime Provinces has been of a peculiar sort. Nearly one-half of it has been for defence works. This means the preparation of air fields, of temporary roads, temporary accommodation and earthworks and fortifications. A very large percentage of the spending goes for the wages of common labour and a small percentage - relatively small, for construction - for structural steel and other products of the construction goods industries. Thus, if we except lumber, the effect of this construction spending on the construction goods industries is not so great as a similar amount of ordinary peacetime construction. Further, the districts suitable for airfields and training camps and fortifications are few in number, so that this spending has been highly concentrated in a small number of areas. Thus the stimulus to employment has been much less widely diffused than it would be, say, from a government roadbuilding program, and there were in fact many areas in New Brunswick and some in Nova Scotia where rural labour actually suffered in 1940 and 1941, diminution in employment for cash wages. By 1942 this was offset partly by increased employment in the lumber woods and partly by migration of labour to industrial areas. The amount spent by the Dominion government on real new capital formation as shown for this period was small, about \$12,000,000 in all, and of this it is difficult to say how much, if any, will have economic value in peacetime; how much that is to say, is actually adaptable to, or not in excess of capacity for, peacetime employment. As we have pointed out in the Bulletin the amount of new capital formation in the Maritimes is very small, both in proportion to the population and to the 1939 level of industrialization, compared with new capital formation in the Central provinces.

Of the other war orders, orders for manufactures have been the most important, totalling about \$5,500,000 in the two year period, and representing about 2.75% of Maritime manufacturing output, which does not indicate an important stimulus. When we consider the general increase in manufacturing to the end of 1941 of some 33-40%, it can be seen that the important stimulus to manufacture came from sources other than government contracts, namely, from increased demand, from sub-contracting and from the purchases of iron and steel products by secondary manufacturers in other parts of Canada. The only other category of any magnitude of the Dominion war contracts was agriculture, and this represented only 2% of Maritime agricultural production. It was, however, largely concentrated in meat and dairy products, and thus may be partly responsible for the great expansion in these particular lines of Maritime agriculture.

The Dominion war contracts were also highly concentrated in certain towns. Of the \$56,000,000 one-half went to Halifax and Saint John, and of the balance all but \$5,000,000 was concentrated in the towns of New Glasgow, which got \$10,000,000, Sydney, Moncton,

Truro, Fredericton and Amherst. An analysis of the detail of the statistics suggests that only in Halifax, Saint John and New Glasgow, did Dominion government war spending of itself constitute an important economic stimulus. In Truro the war spending was important to two manufacturing concerns, but in total amount was hardly as important as the stimulus of increased railway traffic and the effect on the distributive trades of the proximity of Debert Camp. In Sydney the manufacturing orders were simply of no account when set against the expansion of the steel industry orders to which do not directly appear in the Department's breakdown of contracts. The capital assistance item in Sydney of \$3,500,000 is the second largest single item for capital equipment in the Maritimes. It does not look so large, however, when set against the \$20,000,000 already invested in the Sydney steel industry, nor when compared with some of the capital assistance items in the Central provinces. The Amherst orders are concentrated in a single industry which is having a wartime boom, but which is unlikely to be able to continue operation in peacetime. In Moncton our figures suggest the effects of the war on the town have been very much greater from the establishment of the R.C.A.F. station and from the vast volume of traffic passing over the Atlantic Division of the C.N.R. than from the two million odd of war contracts let to local establishments. In Fredericton, there has been a very considerable stimulus to the manufacturing establishments situated there, but the town is not a manufacturing one, and probably the increased business activity is more in the distributive trades which have received their stimulus from the concentration of a large number of troops in the town.

In sum the analysis of the expenditures of the Department of Munitions and Supply in the Maritime provinces shows that this spending was of importance only in construction, and that the bulk of new construction was for defense works and accommodation of personnel. Some of it was for new capital equipment, but a very much smaller amount per capital or per \$1,000 already invested in industry than in Ontario, Quebec, British Columbia, or even the Prairie provinces, and of this only a part, if any, was in plant that will be adaptable to peacetime uses. Thus, whereas the central provinces have achieved a great expansion in their industrial equipment and capacity as a result of the war, the Maritimes have had little expansion of a permanent nature in their industrial equipment. The effects of this on the internal balance of industry will presumably be to increase the concentration of manufacturing industry in Canada and the general location advantages enjoyed by industries in the Central provinces. Although no one can complain of this, for it was essential in wartime to develop war industry on the most suitable sites regardless of regional politics, it nevertheless is a probable consequence that the economic and political weight of the Maritime provinces will be even less in the postwar than the prewar period.

Section 4. New Industries.

In addition to the stimulus of the established Maritime industries as indicated by the indices of economic activity and Dominion government war spending, the war has resulted in the establishment in the Maritimes of certain new industries, or the modification of some of the older industries to such an extent that in their modified form they may well be considered as new industries. In the present section we mean to make a partial catalogue of these new industries.⁶ The new industries which have been most important fall into three general categories, those based on the forests, those based on steel, and munitions of war.⁷

These new industries, in every case based on the use of the forest or metallurgical resources of the Maritimes, must form part of the study of our later chapters on forest and metallurgical industries. To avoid repetition we postpone all discussion of them in the present context and content ourselves with listing them.

Based on forest resources have been the pitprop industry, a short-lived but highly profitable export of pitprops to the British market during the first two years of war; the wooden box industry, and the veneer industry. The latter two we shall find to be significant developments because of their effects on the quality of Maritime wood-processing, though they have scarcely become quantitatively important.

Based on coal and steel has been the wartime shipbuilding, an enormous growth but one whose long run importance we shall see to be doubtful; the steel box industry, of great importance to the small machine shops of the Maritimes and munitions of war.

Section 5. Conclusion.

We see then that the war has brought to the Maritime provinces an expansion which in the regional income, though not in volume of production, has been as rapid as the expansion in the Dominion as a whole. The most marked expansion, however, has been in two components of economic activity, construction and railway traffic, the natural consequence of the strategic position and of the comparatively low level of industrialization. The construction has not

⁶ We say 'partial' because there are no published compilations of new industries established since the war, and we have had to depend on personal inquiries made in various Maritime centres.

⁷ There is a certain overlapping as between the last two categories in this classification.

been of a sort which adds greatly to real capital. There have been few new industries added, and of the few industries only those based on the forests would seem, on our present examination, to have much permanent value. The Dominion government is the biggest single purchaser in the country today and of its spending only a small fraction has gone for the produce of Maritime industry. The effects of this are perhaps more important in the spending for new capital than in the spending for finished goods. For the latter secondary demand has been so active that the manufacturers have greatly expanded production irrespective of the small number of orders they have received from the supply departments of government. But of the spending for new capital, so little has come to the Maritimes and that which has come has been of such a nature, that the balance of industrial capacity, already heavy in favour of the Central provinces has been further disturbed in their favour.

STATISTICAL APPENDIX
TO
CHAPTER 2

TABLE I

MARITIME ECONOMIC INDEX BY MONTHS, 1938-1942

1926 = 100

	1938	1939	1940	1941	1942	1943
January	132.2	124.3	139.7	170.0	208.9	197.1
February	132.7	119.7	139.0	173.1	206.6	178.8
March	131.3	113.2	141.8	166.2	189.2	176.7
April	124.7	109.0	140.2	166.9	186.7	
May	120.7	110.7	143.5	167.5	183.8	
June	118.5	114.9	139.1	175.8	187.8	
July	121.1	123.3	140.0	176.1	190.8	
August	123.7	125.7	143.8	179.3	195.2	
September	125.2	129.5	147.9	183.9	200.3	
October	123.6	130.2	145.9	185.3	204.2	
November	124.1	133.9	150.9	188.6	211.1	
December	123.6	134.4	160.3	204.0	205.8	
AVERAGE	125.1	122.4	144.3	178.1	197.5	

TABLE II

INDEX OF THE PHYSICAL VOLUME OF BUSINESS (CANADA), 1935-1939 ■ 100
 TRANSFERRED FROM 1926 BASE BY USE OF CONVERSION FACTOR 114.5

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1919	63.2	62.8	55.1	56.4	57.8	57.8	65.6	64.3	64.4	67.4	65.7	66.1
1920	76.4	74.5	68.2	64.1	61.3	65.8	65.9	64.3	64.3	61.2	61.6	58.7
1921	60.2	60.6	52.9	53.4	53.4	54.5	55.5	62.4	61.2	59.4	62.2	61.0
1922	61.0	65.1	65.8	60.2	63.9	66.4	67.5	71.4	73.8	71.4	76.1	86.2
1923	74.1	71.3	78.8	75.0	74.6	75.7	74.1	75.5	70.3	75.4	73.8	76.9
1924	73.3	81.3	76.8	74.7	74.8	69.0	71.4	68.3	71.9	71.6	74.5	79.5
1925	77.7	78.5	75.7	75.6	73.4	74.9	76.3	76.9	82.4	85.4	89.5	85.8
1926	84.0	86.1	85.8	85.5	84.6	88.8	87.9	84.1	86.8	92.5	92.9	89.0
1927	91.8	91.7	92.1	92.2	91.3	92.7	92.1	95.0	91.9	92.1	93.3	95.5
1928	95.4	101.7	98.3	96.9	104.2	101.5	104.4	108.6	106.8	109.1	104.6	98.3
1929	122.1	111.6	111.3	114.8	108.6	108.7	113.4	111.6	101.6	109.1	106.8	95.7
1930	111.1	101.5	95.7	97.0	99.6	94.3	94.3	95.1	95.4	89.4	88.8	86.6
1931	86.1	88.2	89.3	84.8	84.4	78.3	81.6	78.9	81.1	77.3	77.4	73.0
1932	73.2	74.6	71.4	65.8	69.8	71.1	68.4	68.2	67.3	65.8	66.2	63.4
1933	59.5	58.5	59.7	61.0	66.7	71.8	73.4	78.4	79.3	77.0	74.7	75.3
1934	75.8	75.5	81.3	80.9	87.0	83.7	83.6	86.5	84.8	83.7	84.3	80.7
1935	85.2	87.9	82.3	86.2	90.2	86.6	89.9	94.2	89.0	93.6	96.1	92.8
1936	92.8	91.5	90.8	96.9	94.0	97.0	96.8	99.1	104.8	106.1	103.1	103.4
1937	102.1	100.4	103.7	108.3	106.6	110.0	110.5	107.8	108.1	111.3	111.7	106.0
1938	97.6	93.2	95.0	98.2	96.7	94.7	95.3	96.5	104.1	103.6	107.8	101.0
1939	98.7	97.6	98.9	101.9	106.0	106.0	105.2	109.3	109.9	116.2	116.2	116.4
1940	113.8	108.7	106.7	119.1	118.9	121.8	123.4	130.2	131.8	132.8	141.6	142.8
1941	144.1	144.9	144.5	153.0	156.4	163.8	166.6	172.4	177.6	178.7	183.7	193.9
1942	192.3	192.9	189.3	198.1	195.5	200.0	203.7	205.7	206.1	207.2	207.8	221.2
1943	225.8	227.3										

TABLE III

NATIONAL INCOME PAYMENTS TO INDIVIDUALS, 1936 - 1942

000 omitted

	1936	1939	1940	1941	1942
P. E. I.	22,482	24,053	26,925	30,295	34,735
N. S.	158,383	165,704	188,917	225,906	270,971
N.B.	117,920	119,327	135,335	166,342	189,574
Quebec	1,022,662	1,082,496	1,235,797	1,462,508	1,732,267
Ontario	1,683,052	1,752,303	1,997,161	2,399,633	2,840,251
Manitoba	253,692	266,467	303,338	360,138	399,903
Sask.	240,877	252,345	282,695	326,501	366,193
Alta.	260,508	278,770	315,283	362,055	422,405
B.C.*	361,910	382,964	437,590	518,913	605,181
CANADA	4,121,486	4,324,429	4,923,041	5,852,291	6,861,480

* Includes Yukon and N.W. Territories

Courtesy:
Dominion Bureau of Statistics

TABLE IV

EMPLOYMENT INDICES

1926 = 100

	Canada	% Unemployed in Trade Unions	Maritimes	P.E.I.	N.S.	N. B.
<u>1937</u>						
Nov.	125.2	8.9	127.3	83.0	124.9	132.8
Dec.	121.6	11.2	122.5	79.4	127.6	118.9
<u>1938</u>						
Nov.	114.6	12.3	112.6	95.0	123.6	103.3
Dec.	114.0	13.7	109.8	85.4	121.5	97.2
<u>1939</u>						
Jan.	108.1	16.2	109.2	92.2	121.0	95.8
Feb.	106.5	15.9	100.5	79.2	107.8	92.9
March	106.5	16.4	101.2	83.8	112.6	88.3
April	104.9	15.7	99.7	88.3	114.7	82.3
May	106.2	13.9	100.2	82.2	114.4	84.1
June	113.1	11.7	108.4	94.4	120.6	94.4
July	115.8	11.6	115.9	108.7	129.9	99.3
Aug.	117.5	11.1	115.6	111.0	124.2	105.4
Sept.	119.6	10.9	116.4	111.6	125.6	105.3
Oct.	121.7	9.1	117.9	103.2	130.5	103.4
Nov.	123.6	9.0	117.9	101.1	126.9	108.1
Dec.	122.7	9.7	123.0	90.6	132.1	113.8
<u>1940</u>						
Jan.	116.2	11.4	118.9	84.3	126.6	111.6
Feb.	114.4	11.3	118.4	85.1	124.9	112.5
March	113.5	11.7	116.0	93.8	125.5	105.8
April	111.9	10.8	111.8	94.0	123.7	98.4
May	114.3	9.6	112.8	86.4	124.0	100.7
June	120.9	7.9	117.0	90.7	128.8	104.2
July	124.7	7.6	124.0	102.2	135.3	111.5
Aug.	127.9	6.4	124.5	110.6	135.5	111.9
Sept.	131.6	5.2	127.3	117.0	136.7	116.4
Oct.	136.2	4.4	128.2	132.5	138.8	115.2
Nov.	139.2	5.0	133.8	134.0	142.4	123.4
Dec.	139.1	6.2	133.2	106.1	142.7	123.4

T.BLE IV (Continued)

	Canada	% Unemployed in Trade Unions	Maritimes	P.E.I.	N.S.	N.B.
<u>1941</u>						
Jan.	134.2	7.4	130.0	112.7	137.5	121.9
Feb.	135.2	6.6	135.2	130.6	142.7	126.3
March	135.3	6.9	135.1	144.0	147.3	119.7
April	141.3	6.6	135.6	93.4	151.2	119.4
May	145.5	5.5	136.5	96.8	156.2	115.2
June	152.9	4.6	152.4	107.1	167.9	134.9
July	157.4	4.1	163.9	108.5	163.2	143.3
Aug.	160.6	3.5	164.2	134.6	164.5	140.7
Sept.	162.7	2.4	164.1	130.2	162.1	143.8
Oct.	165.8	2.7	175.4	121.1	194.8	154.6
Nov.	167.6	3.1	179.6	112.8	198.1	160.7
Dec.	168.8	3.3	187.9	117.5	204.4	171.7
<u>1942</u>						
Jan.	165.8	5.2	183.9	118.9	204.5	162.2
Feb.	165.4	4.3	178.8	115.1	202.4	153.4
March	165.1	4.0	159.3	112.9	172.8	145.4
April	165.2	4.5	155.6	92.0	175.0	135.3
May	167.4	3.3	156.7	94.4	179.3	132.3
June	171.7	2.4	166.1	107.0	185.2	145.9
July	175.7	2.5	177.2	117.0	199.7	153.0
Aug.	177.8	1.8	170.4	111.8	193.3	145.6
Sept.	179.3	0.9	172.2	111.9	195.1	147.5
Oct.	181.3	0.8	185.2	106.7	211.6	157.2
Nov.	183.3	0.7	189.0	108.0	214.1	162.6
Dec.	186.5	0.8	195.4	108.6	220.4	169.6

Source: The Employment Situation
The Labour Gazette

TABLE V

ESTIMATED VALUE OF BUILDING PERMITS ISSUED
(Total for 58 municipalities unrevised - 7 centres.)

	All Canada	Maritimes	Hali- fax	New Glas- Sydney gow	Char- town	Monc- ton	Saint John	Fredericton	
<u>1939</u>									
Jan.	1,706,630	116,028	90,995	3,218	5,500	4,500	6,750	5,065	No Report
Feb.	1,894,161	75,880	43,935	6,500	1,350	Nil	6,450	17,645	Nil
Mar.	3,351,194	93,148	80,670	88	3,200	Nil	3,635	5,555	Nil
Apr.	5,936,806	175,495	46,800	36,890	4,175	No Rep.	73,250	12,380	2,000
May	6,390,779	343,162	97,547	67,280	9,240	13,000	45,985	75,710	34,400
June	7,581,492	619,727	97,907	83,340	3,275	9,050	250,750	173,505	1,900
July	6,535,813	292,406	121,482	51,695	6,865	34,300	7,750	60,224	10,090
Aug.	6,159,468	217,819	117,075	21,575	15,000	19,000	6,000	19,169	20,000
Sept.	4,104,401	154,312	62,046	38,705	1,600	18,900	10,100	17,461	5,500
Oct.	5,612,269	430,374	273,945	30,000	3,915	30,438	22,105	39,141	30,830
Nov.	4,148,889	140,728	46,679	20,178	1,955	1,600	27,910	41,356	1,050
Dec.	6,035,212	105,525	50,400	16,375	450	2,700	Nil	35,600	Nil
<u>1940</u>									
Jan.	2,391,300	75,477	53,850	7,250	Nil	Nil	1,712	11,265	1,400
Feb.	3,015,089	64,615	47,920	1,665	Nil	Nil	6,527	8,503	Nil
Mar.	4,464,780	361,417	289,170	11,900	330	1,500	17,645	40,872	Nil
Apr.	6,959,537	364,518	89,560	5,140	2,543	635	210,665	38,750	17,225
May	9,623,112	671,381	105,982	241,572	1,470	12,650	31,323	44,654	233,730
June	7,231,786	236,913	53,105	104,380	925	21,660	26,060	15,358	15,425
July	7,874,638	282,895	82,298	114,365	8,910	6,740	22,705	39,877	8,000
Aug.*	7,705,592	588,323	162,042	26,390	1,926	7,100	362,122	22,868	5,875
Sept.	6,426,220	283,677	82,682	23,785	11,890	40,000	105,430	18,865	1,025
Oct.	8,466,440	248,510	110,300	19,200	26,275	27,500	40,783	21,362	3,090
Nov.	7,530,566	454,600	272,803	137,550	1,054	6,000	22,985	11,958	2,250
Dec.	5,994,478	253,688	46,035	14,000	900	Nil	174,963	17,790	Nil
<u>1941</u>									
Jan.	3,533,852	94,505	56,345	18,000	1,200	3,200	Nil	15,760	Nil
Feb.	4,754,675	89,827	63,585	6,885	Nil	Nil	5,900	13,457	Nil
Mar.	6,397,623	177,029	90,276	35,500	600	Nil	10,400	34,753	5,500
Apr.	12,552,258	741,701	655,269	14,290	5,155	1,450	27,520	35,092	2,925
May	12,683,624	471,869	197,041	111,050	9,993	4,325	98,575	48,905	1,980
June	8,471,956	294,728	141,460	67,238	5,253	10,350	24,305	46,122	--
July	9,575,086	289,352	170,770	67,155	1,900	11,400	No rep.	35,597	2,570
Aug.	9,354,353	2,321,931	153,065	45,900	8,725	20,250	2,060,290	30,401	3,300
Sept.	8,074,919	336,457	194,698	32,850	25,520	2,200	27,725	49,989	2,475
Oct.	10,095,922	394,179	190,045	105,750	12,790	5,550	18,830	61,214	No rep.
Nov.	8,573,689	1,510,213	85,235	30,800	11,200	18,550	1,342,997	21,431	No rep.
Dec.	5,427,347	331,725	40,410	242,050	8,700	500	26,400	13,665	Nil
<u>1942</u>									
Jan.	4,229,027	69,350	41,382	5,568	Nil	No rep.	No rep.	22,400	Nil
Feb.	4,246,246	91,305	44,100	28,000	1,500	2,100	2,500	12,305	800
Mar.	5,707,622	111,559	44,955	3,450	17,675	900	6,800	35,779	Nil
Apr.	8,865,937	273,088	129,495	30,850	3,800	2,800	23,530	30,133	52,480
May	16,513,162	316,688	159,155	33,100	9,225	18,375	No rep.	20,583	76,250
June	17,612,333	129,642	61,585	36,095	No rep.	No rep.	No rep.	27,932	4,030
July	17,085,076	484,928	107,725	239,000	9,718	1,850	27,890	95,068	3,675

TABLE V (continued)

	All Canada	Maritimes	Halifax	Sydney	New Glasgow	Char' town	Moncton	Saint John	Freder- icton
1942									
Aug.	16,077,182	151,423	46,921	41,400	11,420	N.P.I.	28,490	23,192	No.Rep.
Sept.	17,448,396	510,868	42,538	23,350	4,350	No rep.	309,035	129,595	2,000
Oct.	16,248,700	194,092	82,867	44,020	No rep.	2,700	No rep.	63,305	1,200
Nov.	15,485,935	106,995	58,887	12,945	8,855	N.P.I.	8,950	17,598	350
Dec.									

*revised

† only 56 municipalities reporting

N.B. Figures for August 1939 for New Glasgow, Charlottetown, Moncton, and Fredericton approximate nearest thousand. All figures were based on month-to-month estimates rather than annual revisions in same month of subsequent years, with exception of August 1940.

TABLE VI
INDEX OF THE COST OF LIVING

	Canada	P. E. I.	N. S.	N. B.
<u>1939</u>				
Jan.	101.1	115.6	114.9	120.4
April	100.6	113.6	113.2	119.4
July	100.8	111.4	113.	118.2
Oct.	103.5	115.4	117.4	122.9
<u>1940</u>				
Jan.	103.8	117.2	119.6	123.8
April	104.6	117.5	120.4	125.6
July	105.6	116.7	120.3	124.6
Oct.	107.	117.0	119.4	125.4
<u>1941</u>				
Jan.	108.3	119.4	122.9	129.6
April	108.6	118.1	121.1	128.7
July	111.9			
Oct.	115.5		112.7 Halifax only	113.2 Saint John only
<u>1942</u>				
Jan.	115.4			
April	115.9			
July	117.9		114.	115.4
Oct.	117.8		115.5	116.6

Source: The Labour Gazette

TABLE VII

COMPARATIVE FINANCIAL FIGURES

	Bank Debits to Individual Ac- counts - Canada	Debits to Individual Accts. at Clearing Houses			Total Maritime Provinces	Index of Notes in Hands of Pub.	Common Stocks	Total Circula- ting Media in Hands of Pub. Bk. Notes & Bk. Can. Notes & Coins	Index of BK. Debits *
		Halifax	Moncton	Saint John					
1939									
Jan.	2,511,881,724	27,897,925	7,864,955	15,094,199	50,857,079	112.9	102.9	-	104.0
Feb.	2,050,003,522	22,795,549	7,090,180	12,934,343	42,820,072	112.3	104.1	-	91.5
Mar.	2,428,097,769	27,886,533	7,752,969	14,890,187	50,529,689	119.0	103.7	-	104.5
Apr.	2,473,031,928	24,857,448	7,492,229	14,078,233	46,427,910	119.2	96.2	-	103.6
May	2,839,206,623	40,536,999	9,017,000	16,227,793	65,781,792	111.5	99.2	-	104.3
June	2,831,081,944	27,719,896	9,434,332	16,037,369	53,191,597	115.4	97.0	-	104.5
July	2,376,528,320	30,651,862	9,603,251	16,116,737	56,371,850	114.4	97.3	-	92.9
Aug.	2,389,740,956	26,779,214	9,165,541	16,244,676	52,189,431	115.0	94.2	-	101.7
Sept.	2,831,650,702	32,592,653	9,666,988	16,392,939	58,652,580	133.8	100.1	-	117.9
Oct.	2,989,915,767	42,057,080	10,035,837	16,659,575	68,752,492	129.9	106.0	-	105.1
Nov.	2,930,345,995	38,866,663	10,043,139	17,315,547	66,225,349	129.8	103.6	-	105.4
Dec.	3,056,866,581	39,182,574	11,725,128	17,240,429	68,148,131	136.2	101.2	-	112.7
1940									
Jan.	2,674,334,955	35,788,559	9,929,205	17,843,268	63,551,032	135.5	99.7	-	110.7
Feb.	2,955,217,112	44,570,361	10,040,128	20,670,633	75,281,122	135.8	99.0	-	131.8
Mar.	2,412,660,476	34,740,557	8,979,339	16,784,729	60,504,625	125.6	99.1	-	103.9
Apr.	2,938,297,836	38,994,872	9,270,564	18,720,659	66,986,095	125.0	97.0	289,044,166	123.0
May	3,339,595,188	41,173,794	10,278,501	20,326,197	71,778,492	127.1	80.4	281,859,911	122.7
June	2,681,584,968	32,663,527	11,244,585	17,997,298	61,905,410	142.8	71.9	303,072,371	99.0
July	2,622,547,472	39,906,721	11,322,920	19,912,279	71,141,920	154.1	72.5	346,234,536	102.5
Aug.	2,457,706,218	33,610,893	12,635,018	18,106,058	64,351,969	159.4	76.0	342,162,457	104.6
Sept.	2,571,235,762	34,973,672	10,580,317	17,113,740	62,667,729	167.9	83.2	365,835,120	107.1
Oct.	3,526,624,710	42,069,922	12,844,100	22,405,288	77,319,310	172.8	81.4	378,238,021	127.9
Nov.	3,049,322,205	48,137,050	11,903,302	18,463,230	78,503,582	172.7	81.7	379,104,431	109.7
Dec.	3,208,347,577	39,777,902	12,848,180	17,862,468	70,488,550	177.8	77.1	388,766,754	118.3

*Up to Dec. 1940 based on 1926 = 100, thereon - 1935-39 - - 100.

TABLE VII (continued)

	Bank Debits to Individual Ac- counts Canada	Debits to Individual accts. at Clearing Houses			Total Maritime Provinces	Index of Notes in Hands of pub.	Com- mon Stocks	Total Circula- ting Media in Hands of Pub. Bk. Notes & Bk. Can. Notes & Coins	Index of Bk. Debits *
		Halifax	Moncton	Saint John					
1941									
Jan.	2,941,104,197	41,380,777	11,471,944	19,944,742	72,797,463	169.6	71.3	383,341,813	111.8
Feb.	2,540,182,412	31,579,107	10,426,983	17,688,529	59,694,619	176.0	66.5	386,220,339	104.1
Mar.	2,838,145,853	40,110,067	10,812,935	20,851,618	71,774,520	182.7	66.8	402,846,714	112.3
Apr.	2,984,165,460	41,937,300	11,202,499	20,623,024	73,762,823	186.4	65.8	408,274,889	114.8
May	3,265,871,770	42,114,807	12,016,763	21,767,499	75,899,069	187.9	63.9	405,698,353	110.2
June	4,240,629,935	54,028,662	13,748,774	27,826,457	95,603,893	194.6	64.0	428,592,833	143.8
July	3,241,706,647	42,926,689	12,577,856	19,860,124	75,364,669	198.8	67.5	436,838,032	116.4
Aug.	3,149,790,606	45,460,407	12,729,551	19,848,485	78,038,443	206.3	67.8	438,576,577	123.1
Sept.	3,300,731,342	44,664,965	13,235,629	20,481,483	78,382,077	211.6	71.0	467,880,637	126.3
Oct.	3,627,176,887	46,233,347	15,604,443	22,419,965	84,257,755	217.6	69.1	466,363,398	120.8
Nov.	3,426,905,805	50,127,250	15,124,535	19,918,327	85,170,112	222.9	68.8	489,310,626	113.2
Dec.	3,686,546,270	51,802,990	15,796,155	22,367,464	89,966,609	231.1	67.2	509,496,485	124.9
1942									
Jan.	3,230,788,844	40,592,579	14,944,241	21,618,272	77,155,092	225.4	66.8	498,024,940	122.8
Feb.	2,892,863,582	41,138,547	14,819,382	21,732,901	77,690,830	234.7	64.7	510,861,830	118.5
Mar.	4,176,830,029	60,648,142	14,789,549	30,111,583	105,549,274	241.9	62.3	531,306,186	165.2
Apr.	3,733,218,977	47,548,881	14,067,844	23,960,866	85,577,591	245.5	61.1	530,226,569	143.6
May	3,790,963,595	55,200,205	13,688,423	22,850,501	91,739,129	257.2	62.0	538,347,079	127.9
June	3,767,042,291	47,520,341	16,018,819	24,077,405	87,616,565	255.1	62.8	557,400,000	127.7
July	3,704,132,691	48,032,363	14,888,675	22,503,708	85,424,746	266.3	62.4	565,000,000	133.0
Aug.	3,479,744,886	44,216,215	15,061,614	22,025,859	81,303,689	279.7	61.6	597,600,000	136.0
Sept.	3,516,107,197	51,992,813	14,862,838	20,723,708	87,579,359	292.3	62.6	615,500,000	134.5
Oct.	4,073,390,537	53,794,132	16,952,365	26,714,184	97,460,681	306.4	65.0	634,100,000	135.7
Nov.	4,966,558,098	62,206,007	16,330,409	29,308,705	107,845,121	310.5	67.6	676,300,000	164.0
Dec.	4,194,613,475	49,073,163	17,741,445	23,980,205	90,794,813	318.6	71.3	667,500,000	142.1

*Up to Dec. 1940 based on 1926 = 100, thereon-1935-39 = 100

Sources - "Bank Debits to Individual Accounts"
Labour Gazette

TABLE VIII

TONS OF REVENUE FREIGHT LOADED

	1939	1940	1941	1942
<u>CanADA</u>				
Total	62,790,592	72,946,500	86,115,049	91,864,795
<u>P.E.I.</u>				
Total	146,150	190,242	191,179	219,865
Potatoes	84,167	104,827	107,805	128,888
All agricultural products (including potatoes)	104,598	131,059	138,436	158,597
Cattle and calves	2,543	2,681	3,639	4,659
Hogs	3,177	3,337	3,371	3,558
All animal products (incl.above)	8,254	8,540	10,134	12,157
Mine products	2,767	15,350	8,250	4,653
Forest products	2,440	1,504	1,626	2,644
Merchandise	11,861	13,072	16,224	17,435
Fertilizers	8,540	11,178	6,969	8,452
All manuf.(including merchandise and miscellaneous)	28,091	33,829	32,733	41,814
<u>N.S.</u>				
Total	6,895,499	8,451,929	8,141,818	8,824,022
Apples	50,759	17,621	24,392	28,924
All agricultural products (including apples)	79,264	44,490	55,058	60,235
Animal products (all)	9,659	8,954	13,223	12,911
Bituminous coal	5,427,372	6,444,181	5,822,704	6,059,338
All mine products (incl.coal)	5,645,088	6,894,325	6,510,902	6,789,102
Lumber,timber,box,crate and cooperage material	236,996	405,784	233,086	321,183
All forest products (incl.above)	355,203	554,136	401,587	530,942
Iron & steel (bar,sheet,structural pipe)	132,944	160,476	235,403	318,618
Fish (fresh,frozen,cured)	30,783	35,445	35,964	48,398
Merchandise	73,490	74,296	92,362	107,007
All manufacture & miscellaneous (incl.above)	806,285	950,024	1,160,308	1,430,832
<u>N.B.</u>				
Total	2,130,886	2,666,140	2,891,965	3,368,507
Potatoes	156,386	152,288	170,882	198,286
All agricultural food (incl.above)	202,633	194,527	212,456	254,891
All animal products	11,074	13,369	14,407	17,320
Bituminous coal	344,157	431,149	409,757	457,853
All mine products (incl.above)	633,863	720,331	609,422	640,617
Pulpwood	222,758	287,116	516,533	720,741
Lumber (see N.S.above)	318,003	472,411	457,803	575,764
All forest products (incl.above)	602,786	930,435	1,099,991	1,415,994
Newsprint paper	53,937	71,623	148,353	186,146
Merchandise	72,850	79,707	96,047	105,865
All manufacture & miscellaneous (incl.above)	680,530	807,478	955,689	1,039,685

TABLE IX

DOMINION WAR CONTRACTS LET
IN THE MARITIME PROVINCES
SEPT. 1, 1939 to AUG. 31, 1941
BY DISTRICTS

Halifax	18,125,000
Saint John	10,325,000
Moncton	2,650,000
Sydney	4,420,000
Truro	1,466,000
Amherst	1,265,000
Fredericton	1,725,000
New Glasgow	9,510,000
Others P.E.I.	1,815,000
Others N.B.	1,745,000
Others N.S.	<u>3,515,000</u>
Total	<u><u>56,500,000</u></u>

Source: B.S. Koirstead,
Dominion War Contracts Let in
the Maritime Provinces

TABLE X
 DOMINION WAR SPENDING IN THE
 MARITIMES, BY INDUSTRIAL CATEGORIES

Category	D.M.S. Spending \$	Other Dominion War Spending \$	Approximate Totals \$
Construction & Shipbuilding	10,527,828	20,000,000	30,000,000
Manufacturing	5,323,211		5,300,000
Agricultural Produce	3,219,390		3,200,000
Fuel	1,848,502		1,850,000
Timber and Mill Products	2,054,945		2,000,000
Contracts to Maritime Jobbers for materials not produced in Maritimes	5,666,872		5,650,000
All other contracts			8,000,000
GRAND TOTAL			<u>56,000,000</u>

Source: B.S. Keirstead,
 Dominion War Contracts Let in
 the Maritime Provinces

Chapter 3

LOCATION AND DEVELOPMENT OF MANUFACTURING

Section 1. Introduction.

In this chapter we wish to attempt to assess the effects of the war on Maritime manufacturing industry. These effects, as shown quantitatively, are not difficult to abstract from the material of the previous chapter. The index of volume of industrial production¹ and the carloading figures² alike indicate an increase in all manufacturing of about 50% to 60% from 1939 to 1942. A further analysis of these "overall" figures would show that the expansion was chiefly in the domestic market, although the government was not directly an important buyer.³ Indirectly, of course, for such commodities as steel and steel products, government demand was the initial stimulus, even if that stimulus is not revealed in our figures of Department of Munitions and Supply Contracts. By industries the most important expansion was in shipbuilding, steel and steel products, lumber and lumber products. Textiles and boots and shoes also showed important advances but these, like pulp and paper, had their expansion checked in 1942 by shortages of labour, raw materials and, in some cases, electric power.

This expansion, not unimportant, is, we saw, less rapid and less pronounced than that of Canadian manufacturing in other provinces, particularly Ontario, Quebec and British Columbia, and the expansion in manufacturing capacity has been very much less than in the other provinces.⁴ We know, of course, that given the conditions of Canadian industry and the nature and needs of the war the wartime development could not have been otherwise. What, we feel, has been insufficiently understood, is in the first place, why the conditions were as they were, why manufacturing industry had failed to develop in the Maritime provinces, and, in the second place, what we may expect these wartime changes will mean to the position of Maritime manufacturing in the future.

In this chapter, then, we are not concerned to set out in further detail the quantitative effects of the war on Maritime manufactures, one by one, but rather to set out the theoretic background for the interpretation of these effects, that we already know in a

¹See Chapter 2, Statistical Appendix, Table I.

²See Chapter 2, Statistical Appendix, Table VIII.

³See Chapter 2, Section 3.

⁴See Chapter 2, Section 3.

sufficiently general way. Our problem is why Maritime manufacturing, which at the time of Confederation was diversified and, on the whole, prosperous, failed to develop and to keep pace with manufacturing in the other provinces, and to discover, if possible, the industrial conditions which will determine the retention or loss of such gains as the war has brought.

Our thesis, which we shall attempt to support, may be briefly advanced as follows. The basis of Maritime manufacturing in the days of its prosperity was its transportation advantage with respect to the chief overseas markets, the West Indies, the United Kingdom and the New England States; an expanding purchasing power in the domestic market, protected by distance and poor transport from other possible North American competitors, and a natural advantage and accumulated managerial and labour skills in the chief industry, basic to the other development, lumbering and wooden shipbuilding. Confederation led to the loss of the transport advantage, not because of "unfair" freight rates, but because of the adoption after 1879 of a tariff system which changed the nature of the Canadian market, shifted the balance westward, and this coincided with a technological advance which destroyed the wooden shipbuilding industry. This was followed by other technological advances which increased the power of the "agglomeration factors",⁵ and led to a rapid disappearance of smallscale establishments, 1900-1920, a process that was brought to equilibrium by the "deglomerating factors",⁶ exaggerated by the depression of 1931-35, and offset by "particular" factors in certain industries. These particular factors we cannot measure, but we can infer their presence by a comparative examination of certain industries, and this examination, based on Dominion Bureau of Statistics returns, enables us to speculate with some degree of confidence about the probable ability of specific Maritime industries to retain their wartime gains. Naturally this speculation has to rest on bold assumptions as to the nature of postwar trading.

⁵ Cf. C.J. Friedrich, "Alfred Weber's Theory of the Location of Industries." (Chicago, 1929), Chapter V. The "agglomerating factors" are those which, once there has been some concentration of industry in one area, give, from the mere fact of concentration, advantages to other industries in that area. They are the built-up supply of skills, both managerial and technical, the largescale development of power, economies of size and natural industrial links, such as the growth of an engineering industry where there is a demand for machines, and so forth. The deglomerating factors are those which have a reverse action leading to industrial devolution, the rising cost of management, labour and material shortages and so forth.

⁶ Friedrich, op. cit., p.xxvii

⁷ Friedrich, op. cit., p.xxv-xvii

Section 2, "Disappearance of Smallscale Establishment",⁸

A. The Period of Reciprocity.

Prior to Confederation Maritime trade was largely with Great Britain, the West Indies and the New England States. By 1850 the seaboard colonies had recovered from the trade stagnation noted by Lord Durham⁹ and after the Reciprocity Treaty of 1854 this recovery took the form of a prosperous business activity. The chief items of import were hardware, clothing and miscellaneous manufactures from Great Britain,¹⁰ sugar, rum and molasses from the West Indies and the United States.¹¹ Exports were agricultural produce and fish to the West Indies and New England and lumber and wooden ships to Great Britain and the United States.¹² There was a small trade in fish and coal with the Province of Canada. To a large extent the provinces were self-contained. Many farms produced their own fuel, clothing and food, with small surpluses, usually from the woodlot for cash sale or trade, which paid for the necessary purchases of shoes, tools, sugar, tobacco and rum. Each village had its small grist mill, often a sawmill, a blacksmith shop, and even villages like Oromocto and Shediac had their shipbuilding yards. The unfavourable visible balance of trade was large and represented not capital imports but the value of ship exports and the carrying trade and was larger than any single item of visible exports.¹³

This flourishing economy was based on a great natural resource, white pine, which was the particular factor making for the success of the lumber and shipbuilding industry. The general location factor was the cheapness of seaborne transport in Maritime bottoms of lumber, fish, mineral and agricultural produce to the chief markets, all of which lay across the seas; the ports, open the year round, were served by numerous river systems along which lay the farms and down which the lumber could be floated. There is no doubt, in spite of the lack of comparative transport cost figures, of the great general advantage enjoyed in the transport factor, adjudged by Weber as the principal determinant of localisation, i.e. of situation advantage.

⁸This title with apologies to A.H. Johnson, "The Disappearance of the Small Landowner". (Oxford, 1909)

⁹Lord Durham, Report on British North America - Methuen edition (London, 1930), p. 142.

¹⁰Dominion Bureau of Statistics, "The Maritime Provinces since Confederation," King's Printer, Ottawa, 1927, p. 81, 82, and Chapter IV, Table I.

¹¹"The Maritime Provinces since Confederation", loc. cit.

¹²Ibid., loc. cit.

¹³Ibid., loc. cit.

At the then existing stage of technique manufacturing was neither so specialised as it has since become, nor were the economies of scale so developed. In textiles and heavy industry the United Kingdom had developed pronounced advantages in which the colonies participated from the nature of their triangular trade with Great Britain and the West Indies. But imported fine textiles were for the well-to-do; local industry in homespuns supplied the mass of rural folk. Heavy industry in Britain might sustain the needs of Saint John and Halifax for engineering works and of the first railways, but local demands would be met by the improvised products of local blacksmiths, foundries and machine shops. Nor were these improvisations necessarily crude. The shipbuilding industry, and life in the isolated inland settlements had together developed an independent, inventive, jack-of-all trades skill that could improvise, initiate and adapt. One of the first successful steamboats of history was entirely engineered and built in Fredericton and sailed down the Saint John River to Saint John. The general situation advantage over other North American competitors in this naturally protected domestic market, the adaptable labour skill, the particular advantages arising from the West Indian trade in the manufacture of sugar, rum and molasses, early led to the establishment of variegated smallscale manufactures, of which, after the great trades of lumber and shipbuilding, the most important were tanneries, grist mills, distilleries, breweries, iron foundries, and, a little later in time, sugar refineries.

B. The Period of National Policy and Manufacturing Growth.

Confederation and a national policy of tariff protection were believed, even by Maritime politicians,¹⁴ to provide the conditions for a general development of manufacturing industry in the new Dominion. It was confidently believed that manufacturing in the Maritimes would grow along with that of Ontario and Quebec. In the 80's, in spite of trade depression, new establishments on what was then a large scale of organisation were started in textiles, shoe-making and sugar refining.¹⁵ In spite of the trade recession which followed the abrogation of the Reciprocity Treaty in 1866 and the decline of shipping and shipbuilding, a decline which is apparent

¹⁴"I am not, I think, over sanguine when I say the day is not far distant when the population in the Western country will be greater than in Canada, and when the Maritime Provinces, with their coal, iron and water power will be the manufacturing centres for this vast Dominion...." Sir Leonard Tilley in House Commons Debates, (1879), pp.1306-1308. Quoted by N. McL. Rogers, A Submission on Dominion-Provincial Relations and the Fiscal Disabilities of Nova Scotia within the Canadian Federation (Halifax 1934).

¹⁵Cf. Wilson C. MacKenzie, Manufacturing in Nova Scotia, Report No. 32, Reports of the Nova Scotia Economic Council, Vol. IV, (Halifax, 1939) p. 29.

in the foreign trade figures,¹⁶ the first two decades after Confederation were a period of great industrial expansion and venture. In Nova Scotia alone the number of establishments doubled¹⁷ and capital invested increased from \$6,000,000 to nearly \$17,000,000.¹⁸ In the Maritimes as a whole the expansion in manufacturing plant and capacity was, of a similar order of nearly 300% from \$12,000,000 or thereabouts,¹⁹ in 1871 to \$33,000,000 in 1891.

The probable reasons for this expansion are not far to seek. There was first of all the spirit of optimism and confidence in entrepreneurial circles which was engendered by the National policy, a confidence which was not shared by the traders, many of whom had been and remained consistent enemies of Confederation. In the second place there was the discovery of the Wabana fields, the rapid development of the Nova Scotian steel industry²⁰ and subsidiary steel products industries under the joint stimulus of cheap ore and the demand from rail construction. In the third place was the high protection afforded under the new tariffs²¹ to the domestic market, which, already developed, was of first importance in days when the typical scale of establishment was small and when neither communications made possible nor advertising desirable mass produced "national brands". So a diversified manufacture of smallscale, except for iron and steel, grew up in the Maritime provinces, based on particular natural advantages in the case of lumber products, iron and steel and sugar refining, and, for the rest, on general advantages of tariff protection and transport advantage with respect to the domestic (Maritime) market.

But during these twenty years of expansion employment and output hardly kept pace with the investment of capital. Even in those early days were signs of the disappointments to come. While capital investment increased threefold in Nova Scotia and nearly as much in New Brunswick, employment in Nova Scotia increased by only 40% and in New Brunswick by only 5%.²² With three times the capital Nova Scotian entrepreneurs increased their output value by only 80% and New Brunswick by only 16%.²³ The domestic market by itself was

¹⁶Exports declined from an alltime high of \$16,332,341, with a further \$10,000,000 of invisible exports in 1866 to \$9,743,798, with less than \$5,000,000 of invisible items in 1867. See Table I, Chapter IV, "The Maritime Provinces Since Confederation".

¹⁷Wilson C. MacKenzie, *op. cit.*, p. 29.

¹⁸"The Maritime Provinces Since Confederation", p. 76.

¹⁹Prince Edward Island figures are not available for 1871.

²⁰See Chapter 5.

²¹Before Confederation the Atlantic colonies had had revenue tariffs only, averaging around 10% ad valorem. The duties after 1877 were protective and ran three to five times as high.

²²"The Maritime Provinces Since Confederation", p. 76.

²³*Ibid.*

unable to take the produce of the new industry in anything like proportionately increased amounts, and the new policy exaggerated the effects of the cutting out of white pine and the death of the wooden ship in depriving the Maritimes of their previous advantages and markets.

C. The Third Period - The National Market and Concentration of Industry.

The next stage of development was the period of the opening of the Canadian west and the creation of the national market.²⁴ The opening of the west caused a boom, on a national scale, which made all trade prosperous, and, particularly the steel trades. This effect was pronounced in the Maritimes, especially of course in Nova Scotia steel. The Great War accentuated this. The more permanent effect has received less attention. The whole centre of gravity of the Canadian economy was shifted westward. The Maritimes, from having had an ideal situation with respect to markets, with every transport advantage, now found themselves on the periphery, on the far extreme of an unnatural, tariff-created national economy, with every general advantage in industrial situs enjoyed by Ontario and western Quebec competitors. Only the unusual and impermanent stimuli of railbuilding and war could sustain high demand in this market for Maritime manufactures.

This new national economy developed its own characteristics, many of which were inimical to the prosperous development of a manufacturing industry in the Atlantic provinces. With these characteristics Canadian readers are too familiar for us to analyze them at length here, yet we may note them, because, sometimes, it is of the very obvious and familiar that the significance escapes us.²⁵ The new national system was based on an east-west flow of trade, linked by great transcontinental railway systems which had to be directly or indirectly subsidized by the public. It was a capital-importing system, accepting capital in the form of products of heavy engineering industry in Britain during the stages of first development (1871-1911) and in the form of manufacturing plant and machinery from the United States in its mature period. (1921-1939). These capital imports were financed by the export of staples of extractive industry, wheat, later woodpulp and paper and minerals. The miscellaneous products of mixed manufacturing were supplied by a domestic industry which grew up under the protection of a tariff wall. Contrast such an economy with the mercantile, free-trade economy of the Maritime Provinces in the fifteen years before Confederation. Their exports were of raw materials and processed goods based on their natural

²⁴Say 1891 - 1914.

²⁵At least so Hercule Poirot, who ought to know, repeatedly assures the inimitable Captain Hastings.

resources, their imports of other manufactures, engineering products and tropical foodstuffs came from those to whom they sold. The Canadian economy rested on the tariff system in the domestic market, a publicly subsidized transport system to enable manufactures to flow to the new lands and the grain to flow to the ports and hence to the world markets, and the production from virgin soil of great excellence of a highly specialized cash crop. The profitable agriculture was on the new land. Immigration flowed in not only from Europe, but from the old provinces. During this period of the opening of the west the Maritime provinces had all their surplus population, nearly all their natural increase, drained off. The rural population, 1891-1911, actually declined.²⁶ Whereas in 1871, 18% of the Canadian population dwelt in the Maritime provinces and the centre of population gravity was in the vicinity of Montreal Island, in 1911 only 12½% of the population of Canada lived in the Maritimes and the centre of gravity had shifted westward towards Toronto. The domestic market for manufactured products was becoming a national, not a regional market, railways and low freight rates had destroyed the immunity of the isolated community market and had brought the smallscale productive unit into competition with largescale outside firms. The Maritimes were unlucky in the conjuncture of technological and political events; the abrogation of Reciprocity and the creation of the Canadian national economy which destroyed their general situation advantages with respect to their chief markets coincided with the development of the steamship which destroyed their particular advantage in one industry, shipbuilding; with the opening of the Panama canal, which destroyed their particular advantage in another industry, sawn lumber, with the railway development in Canada, which broke down the isolation of the domestic community market for the product of smallscale manufacturing units, and with the rapid expansion in economies of scale in mass production industry. Thus the period from 1891-1911 did not see the fruition optimistically expected by those who had undertaken the establishment of new mixed manufactures in the Maritimes. During this period the number of manufacturing establishments in Nova Scotia decreased from over 10,000 establishments to about 1100.²⁷ A similar decline occurred in New Brunswick. This decline must be properly understood. It does not mean an absolute decline in the total output or employment of manufacturing establishments. A similar decline in the number of establishments took place in Canada as a whole,²⁸ and it was happening also in the United States and Great Britain. It was a manifestation of the technical process within the structure of capitalist industry. New inventions, requiring large fixed capital, greatly increased the proportion of fixed to variable costs and made possible the increase

²⁶ "The Maritime Provinces since Confederation".

²⁷ Wilson G. MacKenzie, op. cit., p. 30.

²⁸ From 1871 to 1931 the decline in the number of establishments in Canada was from 41,259 to 23,083.

of production at decreasing unit costs.²⁹ This process renders competition unstable and leads to the disappearance of the small-scale unit, either by bankruptcy or absorption. Industry is integrated and concentrated and competition in the market becomes imperfect. It is in part this process which leads to what Weber calls "agglomeration", because the general factors which lead to concentration of one industry in any given area will, unless there are offsetting particular factors, lead to similar concentration of other industries. Clearly the form of largescale investment necessary can only occur if there is the promise of a sufficiently large market to absorb the greatly increased output. In Canada the railways and tariffs made possible entrance to the entire national market, a rapidly expanding one, too, between 1891 and 1911, and the central concentration of population gave tremendous advantage to Ontario and western Quebec. In that area, then, the new large-scale manufacturing industry was concentrated. Whereas in Nova Scotia the decline in the number of firms was of the order of 90%, while expansion in the value of output was about 150%, in Canada as a whole the decline in the number of firms was only about 50% (indicating that many new establishments were begun, offsetting the absorption of small units) and the value of production increased by more than 1,000%.³⁰ The Nova Scotian increase in output, moreover, was more than accounted for by the expansion of the steel and sugar industries, in which there were particular advantages. Thus, allowing for these two exceptions, there was even a small absolute decline and, clearly, a most tremendous relative decline in the manufacturing industry in Nova Scotia as compared with that of Canada as a whole.

This process was not peculiar, as we have said, to Canada, and in the United States where a similar extension of the western frontiers had had a corresponding effect on the national market, the New England states suffered in a manner comparable with the Maritimes.³¹ We must clearly not be understood as making here a case for the sort of grievance that is sometimes voiced in the Maritime provinces against Confederation. The development of the nation state and the pressure of the technological processes combined alike in Canada and the United States to deprive the extreme

²⁹ I have attempted a theoretical analysis of this process in my "Essentials of Price Theory" (Toronto, 1942), Chapters XII and XIV, and also in "Technical Advance and Economic Equilibria", Canadian Journal of Economics and Political Science, Vol. IX, No. 2 (Feb. 1943).

³⁰ These percentages are based on figures taken from official sources and quoted in my "Essentials of Price Theory," p. 123.

³¹ Cf. "The Maritime Provinces since Confederation", p. 24. See also unpublished thesis by Miss Dorothea Cox "A Comparison of Population Changes in the Maritime Provinces and the three Eastern New England States", in the University of New Brunswick Library.

east of general location advantages for mixed manufacturing industries and to bring about a more western concentration. This was inevitable, but it can, perhaps, be said that [the incidence of the tariff was felt not only as the late Rt. Hon. Norman Rogers showed, ³² in the form of increased costs in the Maritimes but also in its adverse effects on industrial situs for Maritime manufactures.]

That the Maritimes were aware of the nature of the change after Confederation, that it was perceived, if not always clearly, by their people that it was primarily a transport advantage that enabled industries in Ontario and Quebec to obtain the further advantages of scale - the agglomeration factors - is evident from the attention given to the question of rail freight rates. But the pressure for reduced freight rates worked two ways. It might - and after 1926 did - bring more traffic to Maritime winter ports. It might enable Nova Scotia coal to enter the Quebec market; ³³ it might enable Maritime producers to effect slight reductions in cost from cheaper transport charges on materials, feeds, and machinery; it might help Maritime manufactures to compete in the national market, though here the assistance was too slight and the Maritime Freight Rates Act came too late to make any appreciable difference to the process of concentration we have just examined. But reduced rates also made possible increased access to the Maritime market for the products of largescale plants in central Canada and increased the difficulties of Maritime enterprisers attempting to carry on on the basis of the local market. The adjustment of freight rates in the interbella period is a question that concerns the establishment of an equilibrium between the general location factors, the agglomerating forces, and the particular industrial and deglomerating factors (the finding of an equilibrium we believe to have occurred after the opening of the West and the First Great War in the period 1921-39) and in that connection will be further examined.

A final general factor is labour cost. Our figures show that in the period when an equilibrium was adjusted the adjustment occurred with an appreciably lower scale of wages in the Maritime provinces than in Ontario, or even Quebec. To some extent cheap labour has been an offsetting and deglomerating factor in favour of the Maritimes in the localisation of Canadian industry. But this has been effect rather than cause. There is no reason to believe that the rates at which labour was offered in the Maritimes - the supply price of labour - was higher at Confederation than in Ontario. It was definitely lower than in the West. The provincial differentials, except for Quebec where a different culture and habit of thought did create a different supply price of labour, are the creation, not the cause, of industrial concentration. Industry did not

³² Cf. N. McL. Rogers, Brief for the Province of Nova Scotia. Chapter VIII.

³³ See Chapter V.

gravitate to Ontario because labour was cheap there. But wages became higher there because industry concentrated there with success and profit and the productivity of Ontario labour increased so that higher wages could be paid. It is possible that today lower wage standards in Quebec and the Maritimes may be an important factor in putting a limit to the concentration of industry in Ontario and may militate in favour of an equilibrium in which further Canadian development may be more regionally dispersed.

Thus we see that in the first stage of industrial development after Confederation, the period from 1871-1891 there was a considerable and optimistic, tariff-nurtured expansion of Maritime manufacturing plant. In the second stage, that of the opening of the west, 1891-1911, there was a shift in transport and general advantage in favour of the central provinces and a great concentration of manufacturing there. During the Great War Maritime plant, particularly in steel and lumber was fully utilised. In the postwar period there was an adjustment and the establishment of an at least temporary location equilibrium in Canadian industry. It is to the study of that equilibrium period, between two wars, to which we now turn.

Section 3. The Establishment of an Equilibrium in Canadian Industrial Location. The Inter-Bella Period of Adjustment.

Note: The reader who wishes to avoid theoretic discussion will do well to skip this section, reading, perhaps, the last three paragraphs and then going straight on with Section 4.

We wish to preface this phase of our study by setting out the general theoretic conditions of location equilibrium. Let us suppose an area which we shall call "Westland" with a concentrated market of 5,000,000 people, and a second area, some 600 miles distant, which we shall call "Eastland", with a market of about 1,000,000 people; and let us suppose further that there are generally no differences in the income purchasing power of the people, their spending or saving propensities or tastes. Let us suppose that there are no marked differences in labour skills or in the rewards offered to labour, so that the labour costs per unit of output are essentially the same when comparable proportions of capital of like quality are combined with the labour. Again we shall assume at first that there are no "particular" factors arising from the possession of specially efficient or scarce natural resources giving a natural advantage in either area to the development of any specific industry. Finally we shall suppose economies of scale to be general to all manufacturing industries and to be such that, for a market of more than 1,000,000 and less than 5,000,000 increases in output will be accompanied by diminishing unit costs.

If the two areas together are protected by sufficient tariffs to close them to all outside competition, what will be the

effect on the situation of manufacturing industry? Will it all gravitate to Westland industry? If not, at what point of concentration will an equilibrium be established? What are the conditions of that equilibrium? That is the theoretic problem underlying the question of localisation of industry in general and in Canada in particular.

To solve it, even theoretically, we should need to know the shape of the cost functions of the different industries and the shape also of the joint demand functions, a problem requiring a theoretic examination beyond the proper bounds of this work. We might, however, indicate briefly the general lines along which a solution would be sought. Industry would naturally gravitate to the "Westland" area. In this area it has a transport advantage amounting to 600 x the per ton mile freight charge on every ton of produce sold to 5,000,000 people. If, as we have assumed, economies of scale exist, then it is apparent that all industries in which these economies are realised will gravitate to the area of transport advantage in the bigger market. If the industries originally had been dispersed, those first to gravitate to Westland will be those in which economies of scale are sufficient to overcome the transport advantage so that the developing largescale Westland firms will be able to undersell their Eastland competitors even in the latter's home market. In industries in which economies of scale are not sufficient to offset transport charges the Westland firms will grow large while their Eastland competitors remain small, but the Eastland firms will not necessarily be driven out of individual existence. Thus the greater the economies of scale or the lower the proportion of transport to other costs, the greater the degree of concentration.

Let us ask, however, if there are any limits to this process of concentration. The limits which we shall discover emerge on three levels of abstraction, (a) on the level defined by the assumptions already made, (b) on the level involved by allowing for the process to be a temporal one in which the concentration goes on industry by industry, affecting the wage rates in the industries in the two areas and (c) on the level discovered by dropping the assumption that there are no particular advantages. We must also question the generality of the assumption of economies of scale.

Even if wage rates are unaffected by the process of concentration and even if there are no particular advantages for specific industries, all manufacturing establishments will not gravitate to the larger area. Two limits are imposed on the concentration. The first arises because concentration involves imperfection in the market. The large "Westland" establishment grows and dominates the market and sets the price. It may become the owner of the small "Eastland" establishment, or it may not. However the matter of ownership is settled, in the imperfect market the higher cost establishment may continue in production, once competition is imperfect.

If it is owned by the "Westland" firm and operated as a "Eastland" branch, the fact that it has higher unit costs may not result in its being closed. The market price is set at the point yielding highest profits to the parent firm. If at this price the "Eastland" establishment can operate for a quantity of production sufficient for the whole or the residue (in case the best profit point of the present firm gives some spill-over for the "Eastland" market) of the "Eastland" market, it would pay to operate this establishment rather than to close it down and to increase output at increasing unit costs in the parent establishment. When we consider as well the important factor of the "goodwill" that would be lost if the "Eastland" establishment be closed down, it can be seen that in all cases where maximum profit points and many cases where optimum cost points (not the same thing) are achieved in producing for the "Westland" market by the parent firm, the "Eastland" branch will be operated on a small scale to meet the "Eastland" demand, as long, of course, as it can produce at a cost that does not exceed the "Westland" price plus transport. If the "Eastland" establishment is independently owned the same principle applies as long as it accepts the price leadership of the "Westland" firm and as long as, of course, the assumed conditions about rising unit costs hold for the "Westland" establishment for outputs beyond those required for the "Westland" market.

The second limit is imposed by the fact that economies of scale will not in all cases be sufficient to offset transport advantages. Though industries in such cases would concentrate in "Westland" to the extent that all largescale firms selling to the "Westland" market would go there, smallscale firms would continue in the "Eastland", selling only to the "Eastland" market, but protected therein by their transport advantage within that market. That their security would be a tenuous one must be admitted, because the development of new techniques would be more possible to their rivals so that, at any time, they might find themselves forced to meet the competition of rivals able to undersell them at home. As long, however, as the conditions we here assume existed, namely, that economies of scale were insufficient to offset the transport costs, the smallscale "Eastland" establishment could continue.

Once we admit that the concentration is not an immediate, extra-temporal adjustment, but a gradual process over time, we see that, even if wage rates were equal in the two areas at the beginning of the process, it would be impossible to assume that they would remain so. The concentration of industry and employment in "Westland" would increase the marginal productivity of labour and its demand price in that area and the slackening of demand for labour in "Eastland" would depress the price of labour there. Thus eventually, as the process continued, wage rates would grow apart to the point where labour costs had been so reduced in "Eastland"

and so increased in "Westland" as to create a labour cost differential between the two areas equal to the transport advantage and scale economies enjoyed in "Westland". At such a point of cost equilibrium theoretically there would be no further movement of industry from one area to another and such industries as had not moved from "Eastland" would remain there.

Again, of course, there are bound to be particular advantages for certain specific industries in each area. When the particular advantages favoured "Westland" the concentration of that industry in which the advantages were enjoyed would be most complete. When the particular advantage in an industry favoured "Eastland", concentration would take place in "Eastland", "Westland", or there would be dispersal, according as to whether the particular advantage was greater than, less than or equal to the general advantages enjoyed by "Westland". Indeed this case follows the general principles of specialisation according to comparative advantage as familiarly developed in the theory of international trade.

Finally we must notice that the generality of the assumption of economies of scale is not justified by the facts. Professor Sargent Florence has found that in all three leading industrial nations, the United States, Germany and the United Kingdom, economies of scale are found in industries like engineering, heavy industry and the motor car industry, that, in textiles, boots and shoes and others, economies of scale appear up to what might be called "a medium scale of establishment", and that thereafter they do not appear, and that in brewing, brick-making and others there appear to be no advantages accruing with increases in scale.³⁴ The failure of economies of scale to appear with increases of size of establishment in certain industries may sometimes be due to the fact that the most economical machine combination can be achieved on a moderate scale, as in the case in the boot and shoe industry;³⁵ sometimes the limit is imposed by what Professor Robinson calls the "rising marginal cost of management"; sometimes, as in the cases of baking, brick-making, "custom-built" or "bespoke" tailoring, the very nature of the industry itself is opposed to largescale organization. It would seem that the growth of the very largescale establishment, with consequent concentration of industry, was most marked during the 'twenties, and that in the following decade the trend towards increases in scale was far less pronounced, was limited, in fact, to certain mass production

³⁴ Sargent Florence, "Economic Research and Industrial Policy", Economic Journal, Vol. XLVII, no. 188 (Dec. 1937).

³⁵ H.C.Hillman, "Size of Formation in the Boot and Shoe Industry", Economic Journal, Vol. XLIX, No. 194 (June, 1939). See also Dr. Stern (ed.) "Labour Productivity in the Boot and Shoe Industry", W.P.A. National Research Project, Washington.

industries, and, in some cases, was actually reversed.³⁶

Thus there are certain types of industrial occupation in which economies of scale do not appear, or, if they do, appear very early in the process of enlargement, so that the area of the smaller market will continue to have its local establishments enjoying a situation freedom from outside competition, but themselves unable to compete in the larger market. These industries will continue to be located in "Eastland", once developed there, or may even come to locate there, and will flourish along with other small scale industries in which the economies of scale and other agglomerating factors have not been sufficient to enable the larger "Westland" concerns to wipe out their "Eastland" competitors and win a complete concentration. In addition, industries with particular advantages in "Eastland" will locate there and, under certain conditions, develop to large scale. Moreover rising labour costs in "Westland" and falling labour costs in "Eastland" will result in a balancing of labour cost advantage against transport and capital cost advantages and will slowly apply the brakes to the general transfer or concentration of industries in "Westland", so that only those with the most marked advantages of scale and transport will completely locate in the more populous area.

It is some such balancing of forces which leads to an equilibrium in the distribution and location of industry between regions, and, during the final stage in the evolution of Canadian industry, some such balance was struck in Canada. We do not suggest that it is permanent, any more than the balance that existed under Reciprocity was permanent. Great technological or political changes may disturb the balance and lead to a new seeking of advantageous situs and so to a further process of adjustment. But there is a distinction to be made, just the same, between the type of flux that went on during the developmental stages in the Canadian economy and the processes of growth and modification during what we have called the period of equilibrium and adjustment. There was a kind of balance in the Maritime economy based on lumber and sea-borne commerce in the Reciprocity period. This, in the next stage, the first twenty years of Confederation, was upset, although manufacturing sought locations in the Maritimes. In the third period, 1891 to the Great War, when the West was opened up, an entirely new balance, for reasons we have shown, became necessary. Different causal factors were present affecting location advantage, and the Canadian economy adjusted in response to these with a heavy concentration of manufacturing in Ontario and western Quebec. In the period from 1921 to the present

³⁶ Cf. Investigation of Concentration of Economic Power (The Temporary National Economic Committee for the 76th Congress), Monograph 13, "The Relative Efficiency of Large, Small and Medium-Sized Businesses (Washington, 1941). Also Thorp, "The Integration of Industrial Establishments", U.S. Census Monograph (Washington, 1940).

war technical changes continued, industries grew and developed, there was change and flux, but the basic factors affecting location were unchanged, so it is a period in which, in spite of many other notable disequilibria - consider the cycle movement, for example -, there was a comparative equilibrium in industrial location. There was no great tendency for a general dispersal of industry, as in France and England, nor for further concentration. The industries that had become concentrated remained so. The units which had continued to exist in the Maritimes were able to maintain their individual existence. Even the depression failed to lead to any great concentration, such as, other under circumstances, might have been expected.

The rapid expansion of the pulp and paper industry and the exploitation of the mineral resources of the northern shield, important developments of this period, giving Canada two other great export staples, one of which surpassed, the other rivalled, wheat as a commodity of export, but slightly modified the general advantages of Ontario as the situs of large scale manufacture. The mineral developments were themselves chiefly in Ontario and went to increase its domestic market and to provide new raw materials and a stimulus for further diversification of its general and heavy manufactures. Pulp and paper mills were more widely dispersed, concentrating chiefly in Quebec, but also in Ontario and the Maritime Provinces. In this industry particular situs advantages are very important and its development is based chiefly on raw material and power resources and independently of general manufacturing location advantages. At the same time its development in Ontario and Quebec was associated with an expansion of hydro-electric power generation which was also linked up with some of the new metallurgical processes and, incidentally, made cheaper power generally available to industry.

The Maritime Freight Rates Act was a consolidation of the equilibrium rather than a condition of it. It was primarily designed to help Maritime ports by encouraging shipping via Saint John and Halifax, rather than to assist Maritime manufacturers to sell in the central Canadian market. Maritime manufacturers selling abroad for example, and shipping via Montreal, as cargo liner schedules frequently made necessary, did not get the benefit of the 20% reduction. Again there was a considerable period when the railways' pickup and delivery service, introduced in Ontario and Quebec to meet truck competition, did not apply in the Maritimes and so left Maritime shippers under a handicap, equal to cartage charges, in competition on the central Canadian market. But on the whole the rates established by the Act enabled Maritime producers to compete in central Canada, with their transport disadvantage partially offset by preferential rates, and thus acted as an equilibrating factor. Thus on pig iron the rate (1934) from Sydney to Montreal (956 miles) was \$4.30 per ton, from Sault Ste. Marie (622 miles) was \$5.60 normal rate, the rate to meet water competition in sum-

per was \$4.25. On steel billets the Sydney-Montreal rate was \$4.30, the Sault Ste. Marie rates were \$5.60 and \$4.50. On enamel ware the rate from Amherst to Montreal (701 miles) was \$8.60 per net ton, from Toronto (334 miles) it was \$8.00. On bunker and forest products the rate from Campbellton, N.B. to Montreal (461 miles) was 19 $\frac{1}{2}$ ¢ per hundred pounds, from Sudbury, Ontario (442 miles) the rate was 28¢, from Orient Bay, Ontario, (870) the rate was 34¢.³⁷ These preferential rates helped Maritime industries with market connections in the central and western provinces to maintain their position there. It must be remembered, however, that in reverse, so to speak, they had the effect of putting the weaker Maritime industries in a somewhat more difficult position in the domestic market. On the whole they would seem to have stabilised rather than offset the trend set up by the other location factors towards a location equilibrium.

Thus this period is an ideal one for our study. Our theoretic analysis suggests that such industrial establishments as existed in the Maritimes during this period did so because (a) they enjoyed particular situation advantages there, as did iron and steel, pulp and paper and sugar refining, or (b) because they were units tied in through ownership integration with central Canadian firms and were operated by them in an imperfect market, as was probably the case of cotton textiles, or (c) because as small units who accepted price leadership it was cheaper to permit them to compete as long as they did not upset the price than to destroy them, or (d) because they were units in an industry in which economies of scale were not sufficient for the largescale firms to reach down to the Maritimes and sell cheaper in the local market than firms on the spot, or (e) because they were units in an industry in which there were no economies of scale, an industry naturally dispersed in widespread, small-scale units, such as bread-making, creameries, custom-built interior fittings for stores or offices, potteries and handicrafts.

If, during this period, a Maritime industry showed signs of growing as fast as, or faster than, its competitors in Quebec or Ontario there would be prima facie evidence for the view that it had, for one of the reasons outlined, offsetting advantages, at least up to a certain scale of size, in the Maritimes. If it showed growth, but at a slower rate than in the central provinces, it could be supposed that it was developing by permission, or because it did not pay to interfere, to serve the Maritime market; a growth strictly limited by the size and comparatively static state of the Maritime population. If an industry failed to develop in the Maritimes during this period, or declined, while at the same time

³⁷ Rate calculations are from "A Submission to the Nova Scotia Royal Commission of Economic Inquiry, 1934" by Enamel and Heating Products, Ltd. I am obliged to Enamel and Heating Products, Ltd. for permission to use their material.

it grew in the central provinces there would be prima facie evidence to support the belief that the general factors favouring location in those provinces were still operating. If we could obtain some such indication of comparative rates of growth we should have a criterion for assessing wartime effects. Subject to modifications from changes in the European market and alternative sources of supply, we should suppose that gains in employment and sales registered by industries which had no wartime increase in plant capacity could be retained only in cases where the industry was one which had shown during the twenty years of the "adjustment period" that it enjoyed some special advantages in the Maritimes. Increases in output in other cases would, if unaccompanied by plant extension or improvement, appear to be passing and ephemeral, the result only of the vast demands of war, to disappear when those demands were past. New equipment and increases in scale of plant, brought about by war, would be important in a permanent way if (A) they occurred in industries possessing particular advantages in the Maritimes, or (B) if they increased the freedom of firms selling in the local market from central Canadian competition under the conditions of (c) and (d) above, or (C) if they were of sufficient scale to give a hitherto small scale "domestic" Maritime establishment sufficient physical size to enjoy economies of scale adequate to enable it to compete nationally with large scale establishments in other provinces.

Section 4.³⁸ The Comparative Rates of Development of Certain Maritime Industries, the Effects of the War and their Apparent Significance.

A. Some General Considerations.

The object of this section is to examine certain industries that have become localized in the Maritime provinces to see (a) how

³⁸ This section is based on the Census of Industry Returns which were made available by the Dominion Bureau of Statistics, which also, most generously, aided by making extensive compilations and running many series of correlations. I am particularly indebted to Mr. A.L. Neale, Chief of the Industrial Statistics and Social Analysis Branch of the Bureau, who gave me office space in his Branch and whose staff helped me enormously, and to Miss L.J. Beehler who directed the work of compilation. This section is published by permission of the Bureau and has been edited in conformity with the Dominion Statistics Act, and I take this opportunity of thanking the Dominion Statistician for permission to publish this material. Because of limitations of time and staff we were unable to make the survey a comprehensive one, and were able to study only the following industries: Pulp and Paper, Boots and Shoes, Primary Iron and Steel, Castings and Forgings, Woollen Cloth, Woollen Yarn, Cotton Yarn and Cloth, and Biscuits and Confectionery.

these industries have grown in size in comparison with their growth in the provinces (Ontario or Quebec) in which they tended to concentrate, (b) how far the growth in size has been correlated with changes in efficiency, (c) what has been the comparative development of labour and power costs and (d) what the indications, if any, are as to the balance of general and particular location factors with respect to these industries in the Maritimes. In the cases of pulp and paper and the steel industries we have given here only the briefest mention indicating points of contrast with other manufactures. A more detailed consideration of these industries is reserved for later chapters in which will be found, however, sections devoted to the Census of Industry data. We have not attempted to define "an industry", but have accepted the Dominion Bureau of Statistics classification of Canadian industries.³⁹

The Census of Industry does not provide any data from which comparative costs may be calculated, and, because of the nature of its returns on capital invested, it is not possible to calculate actual or realized profits on investment. Hence we cannot make from our data any direct study of costs or any comparison of the

³⁹Something, too, should be said of our methods in measuring size of establishments. The data of the Census of Industry exist originally in so-called "schedules" which are annual returns made by each individual establishment and which contain detailed information of the firm's employment, showing monthly variations, its wage bill, in more recent years the wage distribution, short term capital costs, fixed capital investment, power installation, details of power costs, and finally, details and totals of physical and gross value production. From these figures it is difficult to select any that give a satisfactory measure of size. The Bureau of Statistics measures establishments both in terms of labour employed and value productivity, but both these measures are open to most serious objections. Both change with the cycle, and thus indicate that establishments grow smaller during depression periods and larger during good times. This is only true if we define the size of establishment in terms of the units by means of which we measure it. If, however, we think of a large establishment as being one of a large plant, measurement in terms of employment is most misleading, as is measurement in terms of product. Even if we could eliminate the cyclical trend by well-known and somewhat arbitrary methods of adjustment, there would remain almost insuperable objections to both these units. As Dr. Spurgeon Bell has shown (Spurgeon Bell, Wages, Productivity and National Income, Brooking's Institute, 1940) the long term trend has been towards larger plant establishments with greatly increased productivity but with reduced labour employment.

For our purposes, therefore, we needed a unit of measure which corresponded to the popular and proper economic definition of the size of establishment. Unfortunately fixed capital investment as shown on the schedules is not a trustworthy unit of measure, because

efficiency of establishments according to the generally accepted business criterion of efficiency, viz. profitability. We have had to assume, therefore, that wages paid and the net value productivity of labour were indications of efficiency. The business man will be quick to object that these are not measures of efficiency at all, and we must admit that they do not necessarily correspond to or coincide with profitability. But it is probable that both our criteria are fairly reliable indications of profitability. Profits have to be paid out of what is left after the wages bill is met, and the higher the net value productivity of labour the greater this residue will be. Of course high capital costs may leave little of this residue for profits, but generally speaking the rate of return on capital is higher the more productive the labour employed. Also high wages are generally paid when the employer can "afford" them. Thus a high rate of reward to labour is usually associated with good returns to enterprise and capital.

In any case we may well challenge the general acceptance of profitability as a criterion of efficiency. From our point of view the ability of an industry to maintain employment at good wages is one test of its social efficiency; its ability to get a high net value return for a unit of labour employed is surely another, for

39 (continued)

the firms reporting used different accounting methods in estimating both capital worth and depreciation.

Power installation and power consumed is a guide in certain industries to the physical capacity of the plant, but in certain other industries it is no guide at all. For example, in the pulp and paper industry, the power installation of a plant manufacturing ground wood will be very much greater than that of a plant using one of the chemical processes, yet the two plants may be equal in size according to any other measure, capital investment, physical capacity, value product, or employment.

In certain industries the returns show the physical capacity of the plant in terms of either tonnage capacity, as in the case of pulp and paper, or of machine installations, as in the case of textile plants and primary iron and steel. In such cases we had, of course, an ideal stable unit of measure of physical size. We could not use such a measure for all the industries examined, but when we had it we used it. After all consistency in the unit of measure from industry to industry was not important. In each case we were comparing the industry in the Maritimes with the same industry, measured in the same unit, in Ontario or Quebec. As long as the same unit was used consistently in application to any one industry it did not matter seriously if different units were used for different industries. Thus, where possible, we used a stable physical unit of size. Where such a unit was not available we used employment figures partly corrected for cyclical trend.

this means that its labour is of good skill and efficiently (productively) combined with its capital instruments. We are consequently prepared to justify our use of these measures of efficiency on grounds other than that of expediency, although it is also true that these tests of efficiency were about the only ones that could conveniently be made with the Census of Industry returns.

B. Number and Size of Establishments.

An industry may grow in one of three ways, it may increase its productive capacity by the multiplication of manufacturing units, it may increase capacity by a great expansion in the size of plant of existing units, or it may, without increasing capacity, use much more intensively the plant that it has. In modern manufacturing the last method is a characteristic of short term expansion in the boom period of the cycle, but it is not the sort of growth in which we are interested, for it does not represent a permanent development, nor indicate the long term trend towards concentration or dispersal of plant. The increase in number of plants, if pronounced in an area, may be an important indication of concentration, but, since this type of development is not characteristic of most modern manufacturing, as, on the other hand is the expansion of plant in existing establishments, it is this last which is the most important manifestation of regional industrial development.

The statistical evidence of growth of plant in the eight industries we have studied is given in the Statistical Appendix to this Chapter and is summarised in the following composite tables:

50
SUMMARY TABLE 1.

GROWTH IN NUMBER OF ESTABLISHMENTS IN CERTAIN INDUSTRIES IN THE MARITIME PROVINCES
COMPARED WITH GROWTH IN ONTARIO AND QUEBEC

Industry	Number of Establishments by Years													Net Growth 20 years	%age Growth	Indus- try
	1920	'26	'30	'31	'32	'33	'34	'35	'36	'37	'38	'39	'40			
1a Pulp & Paper Maritimes	12	13	13	-	-	11	-	-	-	-	-	-	11	-1	8½	1a
1b Pulp & Paper Quebec	45	50	49	-	-	42	-	-	-	43	44	-	45	1	2	1b
2a Boots & Shoes Maritimes	5	-	6	-	-	-	-	-	-	5	6	-	6	1	20	2a
2b Boots & Shoes Ontario	59	63	70	-	-	78	-	-	-	79	82	83	86	41	71	2b
3a Primary Iron & Steel Maritimes	3	2	4	4	4	4	4	4	4	4	4	4	4	1	33-1/3	3a
3b Primary Iron & Steel Ontario	17	13	15	15	14	14	14	14	15	15	15	15	15	-5	-11-13/17	3b
4a Castings & Forgings Maritimes	26	-	21	-	-	19	-	18	-	19	-	19	19	-7	-30	4a
4b Castings & Forgings Ontario	65	-	87	-	-	93	-	91	-	87	-	84	86	21	32-1/3	4b
5a Woolen Cloth Maritimes	3	3	4	4	4	4	4	4	4	4	4	4	5	2	66-2/3	5a
5b Woolen Cloth Ontario	31	31	34	34	34	38	38	38	38	32	32	32	37	6	19-1/3	5b
6a Woolen Yarn Maritimes	5	7	7	7	7	7	7	8	8	8	8	9	9	4	80	6a
6b Woolen Yarn Ontario	15	17	-	18	18	20	23	21	21	20	19	19	20	5	33-1/3	6b
7a Cotton Yarn & Cloth Maritimes	5	-	-	4	4	4	4	4	4	4	4	4	4	-1	-20	7a
7b Cotton Yarn & Cloth Quebec	11	14	14	14	15	16	16	14	14	14	14	14	15	4	36-4/11	7b
8a Biscuits & Confectionery Maritimes	13	-	16	-	-	17	-	15	-	15	-	11	12	-1	-7-2/13	8a
8b Biscuits & Confectionery Ontario	104	-	102	-	-	82	-	78	-	77	-	78	82	-22	-21	8b

SUMMARY TABLE II

GROWTH IN SIZE OF ESTABLISHMENT IN CERTAIN INDUSTRIES OF THE MARITIME PROVINCES COMPARED WITH GROWTH IN ONTARIO OR QUEBEC

Industry	Unit of Measure	Size of Median Establishment by Years								%age Growth	Industry
		1920	1926	1930	1933	1935	1937	1939	1940		
1a Pulp & Paper Maritimes	(Capacity (tonnage	10,000	11,500	29,200	31,200	-	37,400	37,500	37,500	375	1a
1b Pulp & Paper Quebec	(per annum	19,500	16,400	37,500	37,500	-	62,500	62,500	50,000	320.5	1b
2a Boots & Shoes Maritimes	\$ value of gross output	302,000	228,000	185,000	159,000	-	127,000	122,000	-	-59 ³	2a
2b Boots & Shoes Ontario	output	181,000	225,000	212,000	166,000	-	175,000	158,000	188,000	4	2b
3a Primary Iron & Steel Maritimes	Employees ⁴	663	613	494	192	408	579	563	645	-3	3a
3b Primary Iron & Steel Ontario	Employees ⁴	324	238	343	212	403	540	562	752	132	3b
4a Castings & Forgings Mar.	Employees	27	-	21	17	25	17	13	11	-59	4a
4b Castings & Forgings Ont.	Employees	20	-	17.5	17	19	19	20	17	-15	4b
5a Woollen Cloth Maritimes	Looms	21	-	-	8	9	7	Not calculable	-66-2/3 ⁵	5a	
5b Woollen Cloth Ontario	Looms	20	-	30	25	25	35	-	30	50	5b
6a Woollen Yarn Maritimes	Spindles	200	-	220	225	200	240	-	260	30	6a
6b Woollen Yarn Ontario	Spindles	1,064	-	2,200	3,200	3,168	3,500	-	3,650	247	6b
7a Cotton Yarn & Cloth Maritimes	(Possible (Spindle	-	-	57	72	-	60	-	61	6.6	7a
7b Cotton Yarn & Cloth Que	(Hours	-	-	198	235	-	220	-	178	-	7b
8a Biscuits & Confectionery Maritimes	Employees ⁴	144	-	105	70	83	96	129	126	-12.5	8a
8b Biscuits & Confectionery Ontario	Employees ⁴	68	-	56	59	66	77	79	81	19	8b

NOTES: + For reasons to which we refer in the text it was found impossible to use the modal establishment and so the median was ordinarily used.

1. Approximate

2. Corrected for general price change

3. 1939 Last year of calculation

4. Average not median establishment

5. 1937 Last year of calculation

An examination of these tables and of the data on which they are based reveals the great variety of development experienced by the different industries. For the most part the "disappearance"⁴⁰ of the small scale firm was complete so that there was not any great change in the numbers of establishments in the twenty years under examination. On the whole there was a decline in the number of establishments in both regions in biscuits and confectionery only, but, in the Maritimes, there were declines in pulp and paper, castings and forgings and cotton yarn and cloth, and, in Ontario, there was a decline in primary iron and steel. But Summary Table II reveals more significance in the comparative trends. In pulp and paper the growth in size of establishment was marked in both the Maritimes and Quebec. The detailed figures of establishments showed further that three distinct modes of size appeared when the establishments were classified. There were the small groundwood mills, which, on the whole did not increase in size but did diminish in number over the twenty year period. Then there were the medium sized pulp and paper mills, the mode of which shifted regularly to the right, that is became larger, during the period. Finally the very large newsprint mills became more numerous and grew ever larger.⁴¹ This period⁴² was one of great technical development in this industry. Thus it shows, rather uniquely among those we have studied, the process of formation of large scale units, a process pretty generally completed in the other industries. Both in the Maritimes and in Quebec the process was similar, small units closing up, new and larger units coming into production, and a rapid expansion in the capacity of the existing units. The Maritimes, it is true, had only one of the very large newsprint establishments which sprang up in Quebec, but the general trend was similar.

The pulp and paper industry was the only one, among those we studied, in which in the Maritimes there was any important general plant expansion. In boots and shoes, an industry in which the most economical size is reached at a moderate scale of establishment and in which that scale was achieved in most Maritime

⁴⁰ We recall that we are using this term rather inexactly to mean the process in which small scale firms went out of existence. When the process came to an end the "disappearance" as a process was over, but the disappearance was complete in this sense only, not in the literal sense.

⁴¹ We cannot here reproduce the detail of the data. The scatter diagrams showing by individual establishments the changes in size over the twenty years would both delay the general reader and expand this volume beyond reasonable limits. We must ask the reader to accept our statements of fact about the detail of the statistical data as being accurate statements of or fair inferences from the base data.

⁴² See Chapter 4.

establishments by 1920, there was one very small new establishment started, but otherwise there was no new capital formation, on the contrary there was a marked depreciation of capital invested and a diminution of employment and average output. In the Ontario industry the basic data show no "over-all" change in average size, measured by output, but they do show that this seems to be because there was no important expansion of demand. There was some new capital formation and the substitution of capital for labour, a process which, in contrast to what happened in the Maritime industry, greatly enhanced the productivity of labour.⁴³ Castings and Forgings and small foundry business was a small scale industry generally declining in numbers and size, and there was little difference in the decline in both areas. But in primary iron and steel - and as we show in Chapter 4 in the other secondary steel products - there was an expansion, in Ontario, in the number and size of establishments, a great amount of new capital formation, a general development of the industry, while in the Maritimes there was little change until the war. This failure to develop is discussed in Chapter 5.

In the textiles the Maritime industries remained about the same in size and numbers, and there was a little capital formation - one new large establishment in woollen yarn in the late '30s and a change-over (qualitative change) in machine equipment in one cotton yarn and cloth plant. On the whole the textile group has not flourished in Canada since the last war, and has depended on low wages and high tariffs,⁴⁴ to maintain minimum profitability. Nevertheless, notably in woollen yarns, there was a growth in size of establishment in Ontario and Quebec, very much more marked than in the Maritimes, and capital formation, often of the sort substituting for labour, was on a much greater scale. In biscuits and confectionery the basic data show the appearance of the small-scale chocolate firm of the "Laura Secord" type in Ontario, a type of high-grade confection-making seemingly most suited to small-scale organization. These new smallscale firms make the average figures record a change in size of establishment which is misleading. The largescale chocolate and candymakers in Ontario grew larger, and there was a development there of chewing gum plants and a greater variety in the industry than in the Maritimes where there was a general decline in the size of the industry.

In general the only Maritime industry to record real growth, comparable with that of its Ontario (or Quebec) rival, was

⁴³ Dr. Bell shows that during the same period in the United States the characteristic function of new technical processes was to substitute capital for labour rather than to increase output. Cf. Spurgeon Bell, op. cit.

⁴⁴ Cf. The Report of the Royal Commission on Price Spreads.

pulp and paper, in which very marked particular advantages are enjoyed in the Maritimes, as we shall see, advantages not the least of which is the transport advantage to the New England, New York and British markets, as in the "good old days". In iron and steel, another industry in which the Maritimes have a particular advantage the Maritime industry was static while the Ontario industry grew and became diversified. In boots and shoes the Maritime industry became much smaller while the Ontario industry grew. In the textile groups the Maritimes showed slight growth; there was greater growth in Ontario and Quebec. In biscuits and confectionery, while in both the Maritimes and Ontario there was a decline in the scale of enterprise this was accompanied in Ontario by diversification of enterprise and development of a smallscale but highly remunerative luxury trade, while in the Maritimes there was no such offsetting factor to the general decline. Thus though there was no marked further concentration of the industries we have examined after 1920, it was apparent, with one exception, that established industry in the Maritimes was not growing, that there was still a gradual drag exerted by the agglomeration factors toward the centre; and, we must remember, new industries, automobiles, radios, etc., were always appearing in Ontario and Quebec, seldom in the Maritimes. If the Maritimes were not being further drained of their smallscale enterprises in favour of the central provinces, if a kind of equilibrium was established, it was one which gave to the Maritime industries, in general, a markedly slower rate of development than to the industries of the central provinces.

C. Net Productivity and Wages

The willingness of business entrepreneurs to expand their plants or to venture capital in new plants, resulting in physical growth, may be an indication of their expectations of profit and consequently an indirect index of efficiency. Thus the relative rate of growth of industries in the Maritime provinces is some guide to the comparative efficiency of the various industries and to their probable location advantages. But it is a very uncertain guide. Social efficiency, as we have seen, is not necessarily the same thing as profitability, i.e., the ratio of revenues to costs, and, in any case, efficiency even as we propose to measure it does not arise solely from location of factors. In general the more efficient establishments, in the sense of wage-paying ability or net value productivity of labour, will be those well situated with respect to resources and markets and the other location factors, but the skill and judgment of management will always be a variable and partially independent governing factor. We say "partially independent" because it is part of our thesis that the tendency of managerial ability to migrate to the areas of industrial concentration is one of the general location advantages of these areas. Nevertheless there will always be individual exceptions to this rule and these excep-

tional cases, occurring in particular industrial establishments will give rise to special instances of high efficiency independent of the other location factors.

Finally there is the fact that sheer growth in size has not always been associated with efficiency. The expectation of economies of scale may be realized up to a certain size of plant. Beyond that size further expansion may be accompanied by higher costs and a lower ratio of revenues to costs. The Federal Trade Commission's report on the Relative Efficiency of Large, Medium-sized and Small Businesses, to which we have already referred,⁴⁵ presents evidence strongly suggesting that efficiency, measured by unit costs and by earnings per unit of capital invested, is less in the largest scale of establishment than in units of medium size. The Committee's Report further suggests that the motives for increasing scale are numerous and may be directed towards increased power, towards creating an imperfect market or other objectives and are not associated with business efficiency as defined by the Committee. Unfortunately the measurement of efficiency and the unit of measurement of size of unit chosen by the Committee do not satisfy the most rigorous requirements so that their evidence while suggestive is not conclusive.

We need, however, more direct evidence than statistics of growth, to enable us to draw any conclusions as to the relation of size of plant and efficiency and as to the comparative regional development of location advantage between central Canada and the Maritimes. The Census of Industry returns enabled us to calculate the net value productivity of labour, which may be defined as $\frac{V-C}{L}$, when V is total value produced, C is cost of materials and fuel, and L is the number of labour units employed. We observed (a) the correlation between value productivity of labour and scale of establishment and (b) changes over the period in the value productivity in Maritime and Central Canadian establishments.

The regression equations of net value productivity against size were not always very valuable because frequently there were too few instances to yield valuable results when treated mathematically. Scatter diagrams, however, were in such cases highly suggestive. Our results may be summarized in the following table.

⁴⁵ 76th Congress, Investigation of Concentration of Economic Power, op. cit.

SUMMARY TABLE III.

SUMMARY OF COMPARATIVE DEVELOPMENT OF EFFICIENCY OF ESTABLISHMENTS MEASURED BY NET VALUE PRODUCTIVITY OF LABOUR, AND CORRELATION OF EFFICIENCY WITH SIZE OF ESTABLISHMENT

Industry	Regression Equations		Results of Scatter Diagrams	Change of Efficiency of Median Establishment		Industry
	1930	1940		1930	1940	
1a Pulp & Paper Maritimes	$r = .87$	$r = .81$	Superiority of larger mills over ground wood mills of small scale	1800	3000	1a
1b Pulp & Paper Quebec	$r = .61$	$r = .74$	Three modes all shift to right, indicating superiorities with inc. in scale	2100	3250	1b
2a Boots & Shoes Maritimes	Insuff. instances		Medium scale superior to small	1700(1926)	1490(1939)	2a
2b Boots & Shoes Ontario	$r = .14(1926)$	$r = .35(1939)$	Medium scale and large scale by 1939 had superiority over small	1900(1926)	2250(1939)	2b
3a Primary Iron & Steel Maritimes	Insuff. instances		No clear trend	2250	2200	3a
3b Primary Iron & Steel Ontario	Insuff. instances		No clear trend until '40, when medium scale was superior to both large and small	2100	3200	3b
4a Castings & Forgings Maritimes	No positive correlation		Superiority of medium scale	1500(mode)	1375(mode)	4a
4b Castings & Forgings Ontario	No positive correlation		Superiority of medium scale	2000(mode)	1900(mode)	4b
5a Woolen Cloth Maritimes	Insuff. instances		No trend	900 (av.)	1600 (av.)	5a
5b Woolen Cloth Ontario	$r = .32$	$r = .54$	Superiority of medium and large scales	1375	2150	5b
6a Woollen Yarn Maritimes	Insuff. instances		Medium scale superior	1275	1350	6a
6b Woolen Yarn Ontario	$r = .49$	$r = .38$	Medium scale superior	1300	1675	6b
7a Cotton Yarn & Cloth Maritimes	Insuff. instances		All much same size	Not calculated		7a
7b Cotton Yarn & Cloth Quebec	Insuff. instances		All much same size	Not calculated		7b
8a Biscuits & Confectionery Maritimes	Industry too diversified		Large establishments superior	1400	1450	8a
8b Biscuits & Confectionery Ontario	Industry too diversified		No trend	2000	1800	8b

In general these results, as far as they go, tend to support the findings of the Committee of Investigation of Concentration of Economic Power⁴⁶ that superior efficiency was most usually enjoyed by plants of medium scale. Our charts, however, indicated that in all industries except iron and steel, cotton textiles and biscuits and confectionery⁴⁷ there were economies of scale - or at least advantages - that came with increased scale up to a certain optimum point of size. But the optimum size, differing of course for each industry, might be reached, as in castings and forgings or boots and shoes, at a fairly moderate scale of enterprise, or, as in the case of pulp and paper, it might be at a large scale. But these conclusions, though of general economic interest, are less to our immediate purpose, than the evidence from this analysis that in all the industries, except cotton textiles, for which the evidence was inconclusive, and biscuits and confectionery, the central Canadian industries maintained or increased their efficiency over the period examined, and this improvement was associated with some increase in the scale of establishment. In all industries where there was evidence of an optimum scale, i.e. all except primary iron and steel, cotton textiles and biscuits and confectionery, the Ontario or Quebec industry developed to the point where by 1940 the median establishment approached the optimum scale of size. In no industry, except pulp and paper, did the Maritime median or average approach optimum size. Moreover in boots and shoes, iron and steel, and castings and forgings, the Maritime industries actually lost in efficiency during the period, and only in pulp and paper and woollen cloth did the Maritimes register gains comparable to those of the central Canadian establishments. In biscuits and confectionery the Maritime establishments appear to have gained while those of Ontario lost in efficiency, but this is somewhat illusory. The Maritime establishments were chiefly candy and biscuit makers and they seem to have held their own with their Ontario competitors, though on the whole they were slightly inferior. The Ontario average for net labour productivity was reduced in 1940 by the appearance of a group of miscellaneous small firms engaged in various associated confectionery trades, with low productivity. In every industry the inferior productivity of the Maritime labour-capital combination is pronounced, running from as little as 7% inferior in pulp and paper where near equality is approached to as much as 80% in primary iron and steel. Thus the general advantages of central Canadian industry are pervasive; they are apparent in all the industries examined, and they are almost invariably associated with a larger scale of

⁴⁶ Vide supra.

⁴⁷ These exceptions are noted not because the contrary principle obtained in them, but because there was no positive evidence as to the relation of scale to efficiency revealed in the statistics of these industries.

enterprise, which our theoretic analysis suggests arises from their larger domestic market and the agglomerative location factors. But in pulp and paper the general advantages are slight and the Maritime industry has progressed in efficiency as it has developed in size at a rate comparable with that of the industry in Quebec. In biscuits and confectionery and in woollen cloth the Maritime industries have at least held their position. They are inferior in efficiency as we have measured it, but over the period we have examined they have narrowed rather than widened the gap of superiority enjoyed by their Ontario competitors. In castings and forgings there was little change in the relative positions as between the Maritimes and Ontario. In boots and shoes, primary iron and steel, and woollen yarns the gap was widened, the general advantages were becoming more pronounced. When we relate these findings to our statistics of growth we see, in effect, that pulp and paper was the only industry in which the particular advantages in the Maritimes were such as to permit actual growth and development. In biscuits and confectionery and in woollen cloth the Maritime industries are safe to carry on on their present moderate scale, even to develop slowly with growth of the domestic market. In primary iron and steel the Maritimes have a static, but not necessarily a decaying industry. In cotton textiles our study showed qualitative rather than quantitative changes. The Quebec industry had a lot of new capital formation in the period after 1937, most of it to enable plants to specialize in particular products and to diversify the manufacture. There was a similar development on a much smaller proportionate scale in the Maritimes, but enough to suggest that the Maritime plants were intended to remain in operation as part of the national industry. In the other industries, up until the war, the Maritimes were losing ground in efficiency and size, and there is, from our evidence, little to justify optimism about any new growth or development of these industries. This is not to say that certain old-established individual firms may not continue indefinitely to enjoy a measure of success.

The study of wage payments, which was based on average annual earnings rather than wage rates which are deceptive in industries in which there is much part time employment, further supports the findings of the previous analysis.

SUMMARY TABLE IV

COMPARISON OF AVERAGE ANNUAL EARNINGS OF LABOUR IN CERTAIN
INDUSTRIES IN THE MARITIME PROVINCES AND IN QUEBEC AND ONTARIO

Industry	Average Annual Earnings of Labour						
	1920	1926	1930	1933	1937	1939	1940
1a Pulp and Paper Maritimes	1,142	1,018	1,244	995	1,288	1,246	1,392
1b Pulp and Paper Quebec	1,341	1,293	1,322	1,026	1,370	1,377	1,564
2a Boots and Shoes Maritimes	1,008	881	956	587	618	763	-
2b Boots and Shoes Ontario	1,020	1,025	961	839	918	914	1,069
3a Primary Iron and Steel Maritimes	1,837	1,086	1,303	1,176	1,443	1,442	1,644
3b Primary Iron and Steel Ontario	1,910	1,750	1,740	1,312	1,499	1,564	1,720
4a Castings and Forgings Maritimes	1,240	-	1,248	978	1,138	1,146	1,180
4b Castings and Forgings Ontario	1,477	-	1,210	764	1,176	1,183	1,355
5a Woollen Cloth Maritimes	-	-	712	718	700	-	853
5b Woollen Cloth Ontario	-	-	730	690	830	-	990
6a Woollen Yarn Maritimes	744	433	415	458	563	569	686
6b Woollen Yarn Ontario	-	-	610	580	700	-	880
7a Cotton Yarn and Cloth Maritimes	887	765	725	726	885	837	1,029
7b Cotton Yarn and Cloth Quebec	691	667	757	740	850	853	832
8a Biscuits and Confectionery Maritimes	704	-	896	714	809	795	799
8b Biscuits and Confectionery Ontario	881	-	960	929	1,002	1,075	1,099

In every industry except cotton textiles there is a regional wage differential between the Maritimes and Quebec or Ontario; in cotton textiles annual earnings are about the same in the Maritimes as in Quebec. Over the period of twenty years earnings in pulp and paper have varied in the same way and in the same proportions in both Quebec and the Maritimes, with, perhaps, a slight reduction in the regional differential. In woollen cloth the trend was also upwards both in Ontario and the Maritimes with, however, an increase in the regional differential. In cotton textiles the trend was about the same in both regions and very slightly upwards. In woollen yarns and biscuits and confectionery while Maritime earnings held about level, with cyclical fluctuations, the Ontario trends were upwards, increasing the regional differential. In iron and steel and castings and forgings the trends were downwards, with a recovery in 1940, and the regional differential unchanged. In boots and shoes while Ontario wages held constant Maritime wages declined. Once again the industry with the strong trend in the Maritimes was pulp and paper; woollen cloth, cotton textiles, the steel industries about held their own; the others lost.

This question of earnings will bear looking at another way. The degree of wage differential and the comparative depression of wages are a guide to the amount of labour cost differential necessary to offset the general location advantages. Thus in 1939 and 1940 the wage differential between Ontario (or Quebec as the case may be) and the Maritimes was not great in pulp and paper, iron and steel, cotton textiles (in 1940 it favoured the Maritimes) and was moderate in castings and forgings and woollen cloth. In woollen yarn, biscuits and confectionery and boots and shoes it was high, indicating the general greater inferiority of these industries in the Maritime provinces. In the depression year it is again noticeable how earnings in boots and shoes and woollen yarn were particularly sharply reduced in the Maritime provinces. The behaviour of wages in the steel trades in 1926 and 1933 is commented on in Chapter 5. Even in war years boots and shoes, woollen yarn and biscuits and confectionery could not pay an annual wage of \$800 - the very minimum of subsistence - in the Maritime provinces.

From the point of view of the business manager the efficiency of an enterprise is determined by its earnings per unit of cost. Such figures for groups of industries are impossible to obtain in Canada in reliable form. But something approximating them may be derived from our data. The "net value added" of the Census of Industry returns represents the gross value of output less cost of materials and fuel. This figure, divided by labour employed gives us our "net value productivity of labour". If we divide this by the average annual wage we have the net value product per wage dollar, or the net dollar return for every dollar of labour cost, out of which capital costs, taxes and other fixed costs and profits must be

paid. In general this figure will correlate very high with profitability of enterprise, though there will be some exceptions. In Summary Table V we present the earning efficiency of the wage dollar for the different industries in the Maritimes and Ontario in 1940.]

SUMMARY TABLE V.

COMPARISON OF NET PRODUCTIVITY OF THE WAGE DOLLAR IN CERTAIN
INDUSTRIES IN THE MARITIME PROVINCES AND ONTARIO, 1940

Industry	Net Value Productivity	Average Annual	Value Productivity
	Per Annum of Labour Unit	Wage	Per Wage Dollar
	\$	\$	\$
1a Pulp and Paper Maritimes	3000	1392	2.16
1b Pulp and Paper Quebec	3250	1564	2.08
2a Boots & Shoes Maritimes	1490 (1939)	763 (1939)	1.95 (1939)
2b Boots & Shoes Ontario	2250 (1939)	914 (1939)	2.46 (1939)
3a Primary Iron and Steel Maritimes	2200	1644	1.34
3b Primary Iron and Steel Ontario	3200	1720	1.85
4a Castings and Forgings Maritimes	1375	1180	1.17
4b Castings and Forgings Ontario	1900	1355	1.40
5a Woollen Cloth Maritimes	1600	855	1.87
5b Woollen Cloth Ontario	2150	990	2.17
6a Woollen Yarn Maritimes	1350	686	1.96
6b Woollen Yarn Ontario	1675	880	1.90
8a Biscuits and Confectionery Maritimes	1450	799	1.82
8b Biscuits and Confectionery Ontario	1800	1099	1.64

} Reporting not
reliable

The reader will be struck by the very low figures for iron and steel and castings and forgings, industries in which there are high capital costs. Though we present these figures in our table we believe too much attention should not be paid them, for the calculations of net value added in these industries are exceedingly complicated, particularly where several operations in a series of productive processes are carried out in one plant, and the reporting of "value added" in the Census of Industry returns seemed highly unreliable. The other figures, however, are sufficiently reliable and seem significant. They very strongly suggest that the wage differential between the Maritimes and Ontario, at least in the industries we have examined, is now fixed at a point where it offsets the general advantages enjoyed in the area of concentration. Whereas the productivity of labour in Ontario (or Quebec) exceeds that of Maritime labour in all industries, and sometimes by considerable amounts, the earning efficiency of the wage dollar is very nearly equal in all industries in which the figures are reliable, except boots and shoes. In pulp and paper, woollen yarn and biscuits and confectionery the Maritime industries actually have a higher earning efficiency of the wage dollar than the central Canadian industries. Thus the greater efficiency and general advantages of the industries in the area of concentration are held in a sort of balance or equilibrium by the lower wages of the Maritimes. This equilibrium does not seem to obtain in boots and shoes, where one might expect a further decline, absolute or relative, in the Maritime industry, and pulp and paper, where one might expect a continued development, if the market permits, of the Maritime industry.

Power costs have often been regarded, particularly in industries like pulp and paper, as of decisive importance in determining location advantage. Our evidence suggests the possibility of exaggerating the importance of power as a location factor. The general inferiority of Maritime power resources is well known. The rivers in the Maritimes have an insufficient flow of water in the late summer and sometimes in winter to maintain a steady, adequate supply of power. Most of the pulp and papermills, in consequence, have to maintain steam standby plants to supplement their hydro. Yet power costs in most industries, though they averaged somewhat higher than in Quebec or Ontario, were such that the disadvantage thus resulting was only a small proportion of the unit cost. Even in pulp and paper the power cost advantage enjoyed by Quebec was, on the average, small. Power costs per ton of output for the Quebec median establishment were, in 1940, just 5% less per ton than for the Maritime median. Since power costs are roughly one-fifteenth of total costs, this works out to an over-all advantage for the Quebec industry of .33% of the total per ton cost. This is an unimportant fraction, but it should be admitted that there are individual mills in the Maritime provinces where the disad-

vantages of high power costs and unreliable hydro-electric power are of some importance. In other industries the power poverty of the Maritime provinces is probably not a decisive location factor.

We must conclude that the wartime stimulus to manufacturing in the Maritime provinces may result in permanent gains in employment and the level of activity in the pulp and paper and, possibly, the iron and steel industries. As to these, enjoying as they do certain particular location advantages, and constituting as they do the most important industrial occupations in New Brunswick and Nova Scotia, we must make further and more detailed inquiries. The expansion of the domestic market may be such that the better times now enjoyed by woollen cloth and biscuits and confectionery manufacturers may not be entirely lost after the war. We need not fear any serious decline in these industries in the Maritimes if there is any normal post war business activity. Similarly cotton textiles in the Maritimes will not suffer from central Canadian competition, but, of course, will endure the vicissitudes of the national industry if there are large imports of cotton textiles admitted to this country as part of a post war international trading settlement. In the other industries we have examined, the competitive Maritime position is not such as to lead us to expect them to retain after the war many of the gains they have made during abnormal wartime conditions, if, indeed, they are able to maintain their pre-war position in the face of increased pressure from their rivals in the central provinces. At least the history of the past twenty years would suggest that the general location factors strongly favour the central areas and, in these industries, the offsetting factors seem inadequate to give them any equality in competition even in the Maritime market.

Wartime capital formation in Maritime industries has been slight and has been chiefly in iron and steel and shipbuilding. It has been of two sorts, large additions to basic plant, and numerous small additions to small foundries and shops. Both of these developments are examined in Chapter 5. There has also been some expansion of plant in woodworking industries, to which consideration is given in Chapter 4. For the rest plant expansion has been negligible. In the other industries we have studied here expansion of output has not been accompanied by plant extension, so that there is no problem of evaluating new capital formation apart from the iron and steel and forest products industries.

We have finally to consider the wartime effects on the general location factors. Has the war upset the general location equilibrium we have been studying? That equilibrium, our evidence suggests, is maintained on the one side by the general advantages of the area of concentration, on the other side by lower wage costs in the Maritimes and specific advantages in particular industries. It is an equilibrium that has been opposed to the further development

of manufacturing industry in the Maritimes with the exception of pulp and paper. Has the war changed either of the weights in the balance? It has tended to some equalisation of industrial wages on a national basis, particularly in steel, and it has, as we saw, added much more to the machine and technical equipment of Ontario and Quebec than it has to that of the Maritimes. To some extent the industrial training has improved labour skills in the Maritimes and this may to some extent offset the reduction of the wage differential, and some of the new plant in the central provinces will be useless after the war. But, on the whole, it would appear that both sides of the balance have been disturbed so as to produce a further trend towards increased concentration in the centre. But whether such a movement will occur after the war will depend on matters of which we can now have no knowledge, such as the state of international trading and our foreign trade balance, so that it would be foolish further to speculate about it. All we can say is that, on our analysis, the effects of the war seem unlikely to bring any permanent benefits to the majority of Maritime manufacturing industries. They have maintained their position in a precarious balance of location advantages over the past twenty years, a balance the properties of which we have observed and one that, to the extent it has been disturbed by the war, has moved in a manner probably detrimental to Maritime manufacturing. The particular positions of the more important industries we intend now to examine in more detail.

STATISTICAL APPENDIX
TO
CHAPTER 3

TABLE I

PULP AND PAPERNEW ENTRIES AND MORTALITY RATES

QUEBEC

	1920	1926	1930	1933	1937	1938	1939	1940	20-year Period
Net Mortality		-	1	7	-	-	-	-	-
Net Entry	45*	5	-	-	1	1	-	2	1
Growth %		11%	-2%	-12½%	2%	2%	-	4%	2%

* 45 firms operating in 1920

MARITIMES

Net Mortality		-	-	2	-	-	-	-	1
Net Entry	12*	1	-	-	-	-	-	-	-
Growth %		8%	-	-15%	-	-	-	-	-6%

* 12 firms operating in 1920

TABLE II

BOOTS AND SHOESNEW ENTRIES AND MORTALITIES

ONTARIO

	1926 6 yr. period	1930 4 yr. period	1933 3 yr. period	1937 4 yr. period	1938	1939	1940	20 yr. period
Entries	4	7	8	12	3	4	3	41
Mortality	-	-	-	11	-	3	-	14
Rate of Net Entry	10.5% or an average of 1.75% per annum	16.6% or an average of 4.15% per annum	16.3% or an average of 5.4% per annum	1.75% or an average of .44% per annum	5.2%	1.6%	4.8%	71% or an average of 3.55% per annum

MARITIMES

Entries	-	1	-	-	1	-	-	2
Mortality	-	-	-	1	-	-	-	1
Rate of Net Entry	0	20% or an average of 5% per annum	0	-20% or an average of -5% per annum	20%	-	-	20% or an average of 1% per annum

TABLE III

PRIMARY IRON AND STEELENTRIES AND MORTALITIES

MARITIMES

	1920	1926	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	Total 20 yr. Period	Av. Net Per Annum Increase
New Entries			2											2	1/20
Mortalities		1												1	
Total No. of Establishments	3	2	4	4	4	4	4	4	4	4	4	4	4		
Percentage Increase		-33 1/3	100											-33 1/3	

ONTARIO

New Entries			2						1					3	
Mortalities		4			1									5	1/10
Total No. of Establishments	17	13	15	15	14	14	14	14	13	15	15	15	15		
Percentage Increase	23 9/17	15 5/13	-6 2/3						7 1/2					-11 13/17	

TABLE IV

CASTINGS AND FORGINGSENTRIES AND MORTALITIES

MARITIMES

	1920	1930	1933	1935	1937	1939	1940	Total 20 Year Period	Average ^{Net} Per Annum Increase
New Entries					1			1	
Mortalities		5	2	1				8	-3/10
Total Number of Establishments	26	21	19	18	19	19	19		
Percentage Increase		-19 3/13	-9 11/21	-5 5/9	5 5/9			-30	

ONTARIO

New Entries		22	6				2	30	1 1/20
Mortalities				2	4	5		9	
Total Number of Establishments	65	87	93	91	87	84	86		
Percentage Increase		33 11/13	6 8/9	-2 1/9	-4 1/3	-3 1/2	2 3/8	32 1/3	

TABLE V

WOOLLEN CLOTHNET ENTRY AND MORTALITY

M.R.I.T.I.M.S.

	1920	1926	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	Total 20yr. Period	Average Per Annum Increase
New Entries			1										1	2	.10
Mortality															
Total Number of Establishments	3	3	4	4	4	4	4	4	4	4	4	4	5		
Percentage Increase			33%										25	66 2/3	3.33%

ONTARIO

New Entries			3			4							5	12	
Mortality										6				6	
Total Number of Est. blisymnts	31	31	34	34	34	38	38	38	38	32	32	32	37		
Percentage Increase			9.7			11.7				-15.8			15.6	19.3	.965

TABLE VI

WOOLLEN YARNNET ENTRY AND MORTALITYMARITIMES

	1920	1926	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	20-Year Period
New Entries		2					1				1		4
Mortality													
Total Number of Establishments	5	7	7	7	7	7	8	8	8	8	9	9	
Percentage Increase		40					14 2/7				12.5		80

ONTARIO

New Entries		2	1		2	3						1	9
Mortality							2		1	1			4
Total Number of Establishments	15	17	18	18	20	23	21	21	20	19	19	20	
Percentage Increase		13 1/3	5 9/10		11 1/9	15	-8 16/23		-4 5/7	-4		5 1/2	33 1/3

TABLE VII

COTTON YARN AND CLOTHNET ENTRY AND MORTALITY

MARITIMES

Year	Total Number of Establishments	Mortality
1920	5	-
1931	4	1
1931-1940	4	-

QUEBEC

	1920	1926	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	20-Year Period
New Entries		3			1	1							1	6
Mortality								2						2
Total Number of Establishments	11	14	14	14	15	16	16	14	14	14	14	14	15	
Percentage Increase		27 3/11			7 1/7	6 2/3		-12 1/2					7 1/7	36 4/11

TABLE VIII

BISCUITS AND CONFECTIONERYENTRIES AND MORTALITIESMARITIMES

	1920	1930	1933	1935	1937	1939	1940	Total 20 Year Period	Average Net Per Annum Increase
New Entries		3	1				1	5	
Mortalities				2		4		6	.5
Total Number of Establishments	13	16	17	15	15	11	12		
Percentage Increase		23 1/13	6 1/4	-11 13/17		-26 2/3	9 1/9	-7 9/13	

ONTARIO

New Entries						1	4	5	
Mortalities		2	20	4	1			27	1.1
Total Number of Establishments	104	102	82	78	77	78	82		
Percentage Increase		-2	-20	-5	-1.5	-1.5	5	-21	

TABLE IX

PULP AND PAPERSIZE OF ESTABLISHMENTSMEDIAN ESTABLISHMENTS IN TON UNITS OF PULP CAPACITYQUEBEC AND MARITIMES 1920-1940000 omitted

	1920	1926	1930	1933	1937	1938	1939	1940
Quebec	19.5	16.4	37.5	37.5	62.5	62.5	62.5	50☆
Maritimes	10	11.5	29.2	31.2	37.5	37.5	37.5	37.5☆

☆ Tentative figures

Rates of growth 1920 - 1939 Quebec - 320.5%

" " " 1920 - 1939 Maritimes- 375. %

TABLE X

BOOTS AND SHOESCHANGE IN SIZE OF ESTABLISHMENTGross Output Corrected For Price Changes

ONTARIO

	1920	1926	1930	1933	1937	1938	1939	1940
Mean Establishment	242,000	230,000	281,000	262,000	266,000	270,000	266,000	293,000
Median Establishment	181,000	225,000	212,500	166,000	175,000	180,000	158,000	187,500

MARITIMES

Median Establishment	302,000	228,000	185,000	150,000	127,000	102,000	122,000
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TABLE XI
PRIMARY IRON AND STEEL
AVERAGE FIRM MEASURED BY EMPLOYMENT

YEAR	MARITIMES	ONTARIO
1920	663	324
1926	613	238
1930	494	343
1931	462	260
1932	153	102
1933	102	212
1934	324	308
1935	408	403
1936	400	438
1937	579	540
1938	556	520
1939	563	562
1940	645	752

TABLE XII

CASTINGS AND FORGINGS
MEDIAN ESTABLISHMENTS BY EMPLOYEES

YEAR	MARITIMES	ONTARIO
1920	27	20
1930	21	17 $\frac{1}{2}$
1933	17	17
1935	25	19
1937	17	19
1938	13	20
1940	11	17

TABLE XIII

WOOLLEN CLOTHMEDIAN ESTABLISHMENTS MEASURED BY LOOMS

YEAR	MARITIMES	ONTARIO
1920	21	20
1930	not calculable	30
1933	8	25
1935	9	25
1937	7	35
1940	not calculable	20

Note: The choice of looms as a measure of size was not too happy when it came to calculating the size of the median establishments in the Maritimes because there were in some years such wide spreads that the median was meaningless in any real sense. However, for Ontario the use of looms was preferable to either employment or spindles as it was less affected by cyclical change. For other purposes the use of looms as a measure of size was statistically preferable and we judged it wise to be consistent throughout the study.

TABLE XIV

WOOLLEN YARNMEDIAN ESTABLISHMENT MEASURED BY SPINDLES

MARITIMES

<u>1920</u>	<u>1930</u>	<u>1933</u>	<u>1935</u>	<u>1937</u>	<u>1940</u>
200	220	225	200	240	☆ 260

ONTARIO

1064	2200	3200	3168	3500	3650
------	------	------	------	------	------

☆ One very large new establishment started operation with 3400 spindles.

TABLE XV

COTTON YARN AND CLOTHMEDIAN ESTABLISHMENT MEASURED BY POSSIBLE SPINDLE HOURS*

YEAR	MARITIMES	QUEBEC
1930	57	108
1933	72	235
1937	60	220
1940	61	198

* In Millions

TABLE XVI

BISCUITS AND CONFECTIONERYSIZE OF ESTABLISHMENT MEASURED BY EMPLOYEESMARITIMES

YEAR	AVERAGE EMPLOYMENT
1920	144
1930	105
1933	70
1935	83
1937	96
1939	120
1940	126

ONTARIO

1920	68
1930	56
1933	59
1935	66
1937	77
1939	79
1940	81

TABLE XVII

PULP AND PAPERAVERAGE WAGES BY YEARS 1920 - 1940

QUEBEC

	1920	1926	1930	1933	1937	1938	1939	1940
Average Annual Earnings	1341	1293	1322	1026	1370	1321	1377	1564

MARITIMES

Average Annual Earnings	1142	1018	1244	995	1288	1197	1246	1392
-------------------------	------	------	------	-----	------	------	------	------

TABLE XVIII

BOOTS AND SHOESAVERAGE ANNUAL EARNINGS

ONTARIO

	1920	1926	1930	1933	1937	1938	1939	1940
Average Annual Earnings	1020	1025	961	839	918	897	914	1069

MARITIMES

Average Annual Earnings	1008	881	956	587	618	678	783	-
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TABLE XIX

PRIMARY IRON AND STEEL
AVERAGE ANNUAL EARNINGS

MARITIMES

	1920	1926	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
Average Annual Earnings	1837	1086	1303	1017	1123	1176	1241	1326	1279	1443	1306	1442	1644

ONTARIO

Average Annual Earnings	1910	1750	1740	1656	1488	1312	1355	1286	1307	1499	1482	1564	1720
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TABLE XX

CASTINGS AND FORGINGSAVERAGE ANNUAL EARNINGS

MARITIMES

	1920	1930	1933	1935	1937	1939	1940
Average Annual Earnings	1240	1248	978	1250	1138	1146	1180
ONTARIO							
Average Annual Earnings	1477	1210	764	996	1175	1183	1355

TABLE XXI

WOOLLEN CLOTHAVERAGE ANNUAL EARNINGS

MARITIMES

	1930	1933	1937	1940
Average Annual Earnings	712	718	700	853
	ONT. P. O.			
Average Annual Earnings	730	690	830	990

TABLE XXII

WOOLLEN YARNAVERAGE ANNUAL EARNINGS

MARITIMES

	1920	1926	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
Average Annual Earnings	74½	433	415	531	617	458	610	559	503	563	580	569	686

ONTARIO

Average Annual Earnings			610			580				700			880
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No data for other years for Ontario

TABLE XXIII

COTTON YARN AND CLOTH
AVERAGE ANNUAL EARNINGS

MARITIMES

	1920	1926	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
Average Annual Earnings	887	765	725	713	817	726	757	739	794	885	816	837	1029

QUEBEC

Average Annual Earnings	691	667	757	784	771	740	749	723	791	850	798	853	832
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TABLE XXIV

BISCUITS AND CONFECTIONERYAVERAGE ANNUAL EARNINGS

MARITIMES

	1920	1930	1933	1935	1937	1939	1940
Average Annual Earnings	704	896	714	748	809	795	799

ONTARIO

Average Annual Earnings	881	960	929	999	1002	1075	1099
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Chapter 4

FOREST INDUSTRIES

1. The Forest Industries.

Industries based on the forest resource, chiefly the sawn lumber, shingles, pitprop and pulp and paper industries, rank as a group among the first industries of the Maritime provinces. In Nova Scotia the forest industries rank after agriculture and the metallurgical industries in total output and in New Brunswick they rank first. More important, forest products are the chief item of export of the province of New Brunswick and provide the only considerable means of payment for her numerous imports.¹ Historically the welfare and prosperity of the people of New Brunswick have depended on the state of the forest industries, and the history of settlement in the province has been, in effect, the history of forest development.² In the early days of settlement the white pine, in high demand for shipbuilding and general lumber, led to the settlement of the river valleys, the extension of settlement to the watersheds, the early mapping of forest lands and the characteristic New Brunswick settlement of small farms with woodlots, the mill and the church. Wooden shipbuilding and the carrying trade were natural developments,³ as was also the highly indifferent part time agriculture,⁴ which still remains a problem in many parts of both New Brunswick and Nova Scotia.⁵ The decline of the lumber

¹In 1941 forest products exported from New Brunswick were valued at \$31,367,000. Annual Report of the Department of Lands and Mines (N.B.), Fredericton, 1942. Of this amount more than three quarters was made up of pulp and paper. The Nova Scotia export figures, season of 1941-42, were:

Planks and boards.....	\$4,263,579
Wood Pulp.....	\$2,113,192
Newsprint.....	\$2,774,028
Total.....	\$9,070,799

Report Dept. Lands & Forests (N.S.) 1942

²Cf. Chapter 1.

See also, for an historical account, A.R. Lower et al, the North American Assault on the Canadian Forest, Toronto 1938. Chapters VII, VIII.

³Cf. Lower, loc. cit.

⁴John Davidson, Commercial Federation and Colonial Trade Policy, London (1900), p. 49-50.

⁵Cf. Chapter 5.

industry after the last war brought hardship and extreme poverty to many New Brunswick communities, particularly at the mouth of the Miramichi River, while the growth and prosperity of the pulp and paper industry created new boom towns in the inter-census period 1921-31,⁶ towns which after 1933 were to realize the fate of communities dependent on a single export industry when the world market is abnormally depressed, and which were to learn by suffering a kindred feeling for the already depressed lumber towns.

The future of New Brunswick, and to a lesser extent Nova Scotia, will be similarly directly and intimately associated with the future development and progress of the forest industries. Indeed it is only in the forest industries that are clearly discerned those particular location advantages that promise successful future development of manufacturing in the Maritimes. Welfare, in the future as in the past, and the improvement of standards of welfare, will depend primarily on the utilization of the forest resource. It is our purpose in this chapter to estimate the significance of wartime effects on the group of industries depending on the forest. In order to do this we propose to set out in outline the nature of the basic resource on which the industries feed, to indicate the wartime effects on the exploitation of this resource, to show the relative cost position of Maritime establishments and their competitors, their relative positions with respect to markets, and, ultimately to assess the problems of future policy posed to the industries.

2. The Forests.

The forested areas of the Maritime provinces, which is to say of Nova Scotia and New Brunswick, cover 33,503 square miles, of which 11,850 square miles are in Nova Scotia, and 21,753 square miles are in New Brunswick.⁷ These stands are divided as follows:⁸

⁶The populations of four pulp and paper towns, Edmundston, Bathurst, Campbellton, Dalhousie, grew as follows:

	1911	1921	1931	Approximate rate (1921-1931)
Campbellton	3,817	5,570	6,505	plus 20%
Edmundston	1,821	4,035	6,430	plus 50%
Bathurst	960	3,327	3,300	-
Dalhousie	1,650	1,958	3,974	plus 100%
Compare the lumber towns:				
Chatham	4,666	4,506	4,017	minus 11%
Newcastle	2,945	3,507	3,383	minus 3%

Census of Canada, 1931.

⁷"The Forests of Canada", Forest Service Branch, Department of the Interior. King's Printer, Ottawa, 1935.

⁸Ibid.

	Land area	Softwoods		Mixed	
		Merchantable	Young	Merchantable	Young
N.B.	27,473	5,884	2,416	7,378	3,883
N.S.	20,743	5,000	3,000	670	480

	Hardwoods	
	Merchantable	Young
N.B.	1,322	890
N.S.	1,800	1,000

More important than stands, however, is some notion of the accessible timber, the rate and nature of growth and the continued productivity of the forest. The present accessible timber of merchantable size is given in the following table.⁹

	N.B.	N.S.
<u>Conifers</u>		
Saw material in 000,000 board feet	5,657	4,854
Small growth in 000 cords	48,070	23,182
Total (equivalent in standing timber) in 000,000 cubic feet	6,863	3,775
<u>Broadleaved</u>		
Saw material in 000,000 board feet	3,944	1,170
Small growth in 000 cords	15,737	5,805
Total (equivalent in standing timber) in 000,000 cubic feet	2,359	808
<u>Total</u>		
Saw material in 000,000 board feet	9,601	6,024
Small growth in 000 cords	63,807	28,987
Total (equivalent in standing timber) in 000,000 cubic feet	9,222	4,583

The annual cut in Nova Scotia was, in 1941, of conifers 299 millions board feet, of hardwoods, 28 million board feet and of pulpwood 131,000 cords,¹⁰ and in New Brunswick the cut in 1941 was 1,194 thousand cords of pulpwood.¹¹ In all the cut for the Maritime provinces in a normal peacetime year (1937), including all conifer types ran about 2.9% of merchantable stands,¹² a rate about double that of

⁹ Ibid.

¹⁰ Report of N.S. Department of Lands and Forests, Halifax, 1942.

¹¹ Report of N.B. Department of Lands and Mines, Fredericton, 1942. Lumber cut for N.B. is not given for 1941.

¹² F.A. Guthrie: The Newsprint Paper Industry: An Economic Analysis. Cambridge (1941), p. 26.

Quebec and more than double that of Ontario. The rate for hardwood is slightly higher. If one puts to one side loss from fire and insect this cut, though high in a war year, probably is not excessive for the natural reproductive power of the forests. Red spruce, balsam fir, and similar conifers suitable for pulp, have a reproduction period of approximately twenty years,¹³ so that an annual cut of 3% would not appear excessive. "Although little information is available about growth rates in Canada, it is fairly certain that the annual growth is sufficient to offset this depletion".¹⁴ The Maritimes are blessed with soil and climate making for particularly rapid reproduction. "Because of proximity to the Atlantic the climate in this area is moist and favourable to growth".¹⁵ Predominantly the area is geologically suitable to generous forest coverage though in the northern sections of New Brunswick and in Cape Breton Devonian and granitic intrusives give a thin stony soil¹⁶ which makes for heavy wind damage. Unfortunately we have no proper full inventory of Maritime forests. Murray B. Morison's "Forests of New Brunswick", published in 1938, makes an estimate of stands, but much of the material is based on calculations made in the early 1920's. Not only is this now out of date, but, as the Finnish Forest Service has shown, periodic inventories are necessary to show the relation of cut to growth. It is a great weakness that our foresters have not exact or certain information on the relation of the annual cut to the annual increment. Mr. Morison's estimate of an average cut of 150 million cubic feet of conifers over the past thirty years when put against his estimated stand of 7,473,000,000 cubic feet and net annual increment of conifers of 190 million cubic feet¹⁷ allows a small margin of safety for loss from fire, wind and insect. But as we have said no real check on cutting is afforded by these estimates so that we can suppose, but cannot know, that the natural increment covers the overall depletion.

But a good forest coverage is not enough to sustain a sound forest industry, even if the annual cut can be indefinitely re-

¹³ B.W.Fleiger, Professor of Forest Engineering, University of New Brunswick. In conversation.

¹⁴ J.A. Guthrie, *op. cit.*, p. 27. Almost all experts agree. The Pulp and Paper Magazine, authoritative trade journal, editorially comments (Vol.43, No.11, Oct. 1942, p. 838) that there are no national shortages of merchantable timber in Canada. Silviculture may be needed in special areas for specific local shortages, but natural reproduction is sufficient as a general rule.

¹⁵ J.A. Guthrie, *op. cit.*, p. 20.

¹⁶ W.E.D.Halliday, A Forest Classification for Canada. King's Printer, Ottawa (1937), p. 36-41.

¹⁷ M.B.Morison: The Forests of New Brunswick. King's Printer, Ottawa (1938), pp. 60-61.

placed by natural reforestation. We have to know if the forest is adequately protected against other forms of destruction, whether the cycle of tree reproduction yields merchantable types, and if the young stands will mature in limits accessible to the present industrial sites.

Fire destruction, while heavy, is not serious, considered over the area as a whole. About one-tenth of one per cent is reckoned as the average fire loss in Canada as a whole,¹⁸ and because of the dampness of the area the Maritime rate may be slightly below the average. Maritime provincial governments have provided a fire prevention service¹⁹ and require private owners to cooperate in fire control and to put out fires in their own limits. Big holders have well-worked out fire protection schemes, based on the Wright system of indexing fire hazard, and providing for patrols calculated on the degree of hazard and intended to prevent or localize outbreaks.²⁰

Insect destruction is probably a more serious menace in the Maritimes particularly since the infestations of the spruce sawfly after 1934 and the yellow birch borer since 1939. The spruce budworm, long endemic in the province - manifestations of epidemic outbreaks as early as the 18th century have been found - takes a heavy toll of fir, and, in epidemic years, of spruce. In the budworm epidemic of 1913-21 in the Miramichi, damage to roughly one-third of the standing timber of the watershed was nearly complete. Estimates of this damage made by the New Brunswick Forest Service vary from 10,000,000 cords to 22,000,000 cords, the latter figure including loss of growth and consequent wind damage. Mr. Morison puts the loss at 80% of the merchantable balsam fir and 25% of the merchantable spruce. There seems little direct control over this insect. Over the yellow birch borer, also, no control has yet been found,²¹ but the spruce sawfly infestation is under partial control and no increase of incidence has appeared since 1938, when the peak infestation was reached.²² This insect spread to New Brunswick from the Gaspé where from 1934-1939 the mortality of spruce from the ravages of the sawfly increased from 10% to more than 26%.²³ By 1938 more than 12,000 square miles in the

¹⁸ J.A. Guthrie, op. cit., p. 27.

¹⁹ "The Forests of Canada."

²⁰ G.A. Ellis and H.W. Beall. "Proposed Fire Control Plans for the New Brunswick limits of the Bathurst Power and Paper Co. Ltd." Pulp and Paper Magazine, Vol. 40 (1939), p. 315.

²¹ R.E. Balch, Dominion Government Entomologist, in conversation.

²² R.E. Balch, "The Spruce Sawfly Outbreak in 1941". The Pulp and Paper Magazine, Vol. 43, No. 5, April 1942.

²³ R.E. Balch, 1935-1941. Reports on the Spruce Sawfly. Ottawa

Gaspe were infested. Infestation became general in New Brunswick, but heavy only on two points on the south shore of the Restigouche, one on the Nepisiquit and one point between the Renous and South-west Miramichi. By 1938 the infestation was checked by the introduction of the parasite,²⁴ but optimism on future control by parasite must be tempered by the knowledge that a disease became epidemic among the larvae and operated with the parasite to reduce infestation and by the apparent fact that the spread of the sawfly seems to be influenced by the effect of weather on the diapause.²⁵ The danger is much reduced but still present and the mortality from this insect might again increase, despite the introduction of the parasite, given suitable weather and the disappearance of the disease affecting the larvae, a disease which cannot be artificially produced or controlled. But direct controls are much less important than indirect controls. Insects and disease normally attack overmature or very young stands. The present outbreak of the yellow birch borer in New Brunswick, for example, is the result of the accumulation of stands of over-mature trees. The budworm epidemic is by some attributed to the development of stands of old fir. "A number of our destructive forest insects breed normally in dying or weakened trees".²⁶ Proper silviculture, which, as we shall shortly show, is necessary to maintain the reproductive power of the forest against industrial utilization is also the best method of insect control.²⁷ Nor is it sufficient to show, as A.R. Gabeil has attempted to do,²⁸ that the Canadian stand and natural reproduction is quite sufficient to offset insect depredations. Too much faith is put in this heavy natural reproduction in Canada. The accessible timber, economically workable, is in more limited stands, and both economy of operation and eventually reproductive power are threatened in particular areas by insect and cutting. Moreover the lumber industry relies on mature trees. Their destruction in the economically accessible areas, particularly in the Maritime provinces, even if there is heavy growth in other - and economically inaccessible areas - cannot be looked upon with equanimity.²⁹

²⁴Cocoons per square feet at stations in N.B. showed as follows:

	1937	1938	1939	1941
Young's Brook	8	16.7	23.9	0.3
Dunbar Creek			13.9	0.0

R.E. Balch, *op. cit.*

²⁵ R.E. Balch, *op. cit.*

²⁶ R.E. Balch, "Cultural Practices and Forest Insects", 65th Annual Report of the Entomological Society of Ontario (1934).

²⁷ R.E. Balch, *op. cit.*

²⁸ A.R. Gabeil, "Dendroctonus Piccaperda Hopk: A Detrimental or Beneficial Insect?" - Journal of Forestry, Vol. 39, pp. 632-640 (1941).

²⁹ For a detailed reply to Mr. Gabeil see R.E. Balch, "On the Estimation of Forest Insect Damage, with Particular Reference to Dendroctonus Piccaperda Hopk". Journal of Forestry, Vol. 40, pp. 621-629 (Aug. 1942).

In certain Maritime forests, wind loss is sometimes heavy. If a stand is inaccessible, or accessible only at uneconomic cost, it may be permitted to become overmature. This is particularly true of forest categories A.1 and A.6.³⁰ The problem of control and prevention of this type of loss is also bound up with the question of rotation of cut. The forest reproduces itself, but the new stands will be of different types and ages. Ideal forest management would provide for a cycle of cutting, so arranged that a series of stands of proper types would become available year by year at the right stage of maturity for cutting. Then no trees would be cut too young - a process that yields poor pulpwood and poorer timber and at the same time unnecessarily depletes the forest and threatens its natural reproduction - and no trees would be left to become too old, to blow down and to increase the fire and insect hazard.³¹ Unfortunately such perfectly controlled cutting is not possible, but the waste from present methods of cutting has previously led to the advocacy of selective cutting for Maritime forests.³² The phrase "Selective cutting" needs defining. In one sense the cutting done by the frontier settler when he cuts out his most valuable trees is "selective", but it is not apt to enhance, or even maintain, the future yield of his woodlot. In Scandinavia, indeed generally in Europe and even in Siberia where forest conditions are more like those of Canada, "selective cutting" or silviculture means the cutting of trees so as to maintain the productive power of the forest. Diseased trees, saplings that threaten to check the growth of more mature wood, fire hazards are cut out - the products may be sold as by-products, pitprops, cheap fire wood, etc. - and trees of desired species and age are cut, but in quantities that will give a constant or even increasing increment year by year, and with an eye, too, to preventing wind damage. Practical silviculture in Canada might take the form of selective cutting of stands. In this method groups or stands whose general species and typical age are suitable are clear cut, but the operator rotates his cut through the forest year

³⁰ The Maritime forests are classified as:
 A.1 - New Brunswick Uplands Section
 A.2 - Miramichi Section
 A.3 - Northeast Coastal Plain
 A.4 - Central-Saint John River System and Northwest Nova Scotia
 A.5 - Atlantic Slope
 A.6 - Cape Breton Plateau
 A.7 - Cape Breton Plains

W.E.D. Halliday, op. cit., pp. 36-41.

³¹ The amount of burnt-over barrens in northern New Brunswick and Cape Breton shown by Halliday, op. cit., is some indication of the connection between fire hazard and overmature stands.

³² S.A. Saunders, "Forest Industries in the Maritimes Provinces", in A.R.M. Lower, et. al. op. cit., p. 366.

by year so that he has always a steady increment of stands coming to maturity. This method of rotating a clear cut requires, to be successful, that the limits be sufficiently large and diversified into stands of fairly distinct age groups, that all parts of the limits are economically accessible, that strips are not cut so as to increase wind damage to those left, that the strips are not too large to prevent natural regeneration and that the natural successor types are of merchantable species. Thus for small woodlots the "rotation method" is scarcely practicable. Both methods, depending on the nature of the forest, are beyond doubt desirable for the large limits. It is, however, doubtful, if this policy would be accepted by the pulp and paper companies, or even, in entirety, by all the forestry experts.³³ It is agreed that, though some of our forests, notably broadleaves, would benefit from selective cutting, the process would be unnecessarily expensive for the pulp and paper companies on their limits. For these, far more important than selective cutting by types within sections, would be a forest road development which would make accessible all sections of the forest so that proper cut rotation, according to maturity, would be possible. The predominant species naturally reforesting are the balsam fir associations, black spruce and white birch.³⁴ As these are woods suitable for pulp - the growing industry - the companies, and particularly the pulp and paper companies, are strongly opposed to the introduction of methods of silviculture and forest management which they dub "European", and deem prohibitively expensive. It is to be noted here that, in effect, the attitude of the companies is to advocate a programme that would presumably involve public expenditures rather than one which would, at first, at any rate, raise their own cutting costs. In determining proper policy, we should bear in mind that in such a judgment the advocacy of the companies is not apt to be disinterested.

The problem is further complicated by the question of ownership. In Nova Scotia about 87% of the forest land is privately owned, of which half is in holdings of 1,000 acres or over.³⁵

³³ Professor B.W. Flieger in conversation said no single policy could be rigidly followed. Forest life was dynamic, changing; there were changes in insect danger, in consumer demand, in the pattern of tree generations. In some cases present cutting policies were, perhaps more by accident than design, satisfactory. In other cases a rotated strip cut would be desirable, "selective cutting" might be introduced to the woodlot operators. Even artificial reforestation might in a few cases be desirable. One should avoid a doctrinaire position. Cf. also "A Post-war Policy for Canadian Forests", Report of the sub-Committee of the Board of Directors, Forestry Association, Pulp and Paper Magazine, Vol. 43, No. 6, May, 1942.

³⁴ W.E.D. Halliday, op. cit.

³⁵ "The Forests of Canada".

In New Brunswick, 35% of the forest land is Crown land, and of private holdings only about 20% is in holdings of over 1,000 acres,³⁶ but New Brunswick International Paper has large limits in Gaspe and provincial crown lands are in use in large limits under control of big operators. The large holdings and crown lands might be operated more economically if the stands were made accessible by a forest road development as part of a postwar reconstruction scheme, but the small holdings, 48% of the total in New Brunswick and 44% of the total in Nova Scotia, would remain outside this scheme. The proper management of the small holding, typically the farmer's woodlot, would require some further plan. It has been suggested that cooperative communities, perhaps soldiers' settlements, might be organized whose woodlots would be jointly operated on a proper cutting cycle. Forest rangers might be trained to serve and advise these communities,³⁷ and marketing arrangements with the mills, or even cooperative mills, might easily be established. The subsistence farm could be combined with this form of forestry, as at present, and if the cooperative organization worked successfully it could be extended to the marketing of agricultural produce.³⁸

³⁶ "The Forests of Canada".

³⁷ A survey of Canadian legislation shows the comparative backwardness of the Maritimes in providing assistance and guidance to forest operators. The forest services are chiefly intended to prevent fire and to conduct the business management of the Crown lands. Quebec has a forest ranger service, a wood-selling assistance act (1935) and Plant Protection Act (1929) in addition to the usual Forest Resources Protection Act. The Nova Scotia Small Trees Act (1941) is the first step in the Maritimes towards controlling the depletion of the forests by wasteful cutting.

³⁸ The following brief summary of the scheme was outlined in conversation by leading New Brunswick foresters. Two suggestions have been made to permit of more economic utilization of the farmers' woodlands with profit to the farmers themselves, suggestions that are not necessarily incompatible. The first is that government, by regulatory decrees such as the Nova Scotia Small Trees Act, prohibit the most wasteful and exploitative practices into which farmers are tempted by pulpwood buyers. In addition to these prohibitions government should encourage the formation of cooperatives of woodlot operators, and provide each cooperative with the services of a specially trained man who would be similar to and might be called after the American "forest ranger". These men, it is suggested, could be trained in a short course in the Forestry School of the University of New Brunswick and the cooperatives should be grouped in county or larger areas under the general supervision of a fully trained forest engineer. The cooperative organization would give greater stability in marketing and should obtain a better, or at least more stable price, but its main purpose would not be so much for cooperative marketing but for cooperative working of the forest lands, so that proper and conservational cutting methods could

No complete study has been made of the history of the Maritime forest. There have been topographical surveys like Fernow's,³⁹ Morison's,⁴⁰ and Halliday's,⁴¹ and studies of utilization, and industries,⁴² but in a country depending on natural reforestation, we need to know the pattern of the forest's life cycle. We do know that in recent years the black spruce, white and wire birches, and balsam fir tend to be successor trees, but we do not know how these forests would develop, nor in what quantities the replacements come. We know that left to itself, without cutting by man, the forest changes. Trees of a certain type appear, have their day, and like the civilizations of man, die out and yield place to new communities. Insect pests, we also know, follow certain cycles,⁴³ but we cannot correlate these with the cycle of types, with average maturity or with fire. It may be that we ought to try to control new growth so as to get the type of tree we want by methods of silviculture similar to those in use in Europe. But can we estimate demand a tree a generation or more in advance? Can we

38 (continued) be applied. This scheme is no doubt an excellent one, but it depends on a social attitude that is probably not present among the majority of our small farmers. Moreover one wonders if it is as applicable as one would hope in our country where the small farms and woodlots are widely separated. There are certain districts where it might be tried if the men who would be involved showed any enthusiasm for the scheme. The other suggestion is that after the war model forest communities be established on a semi-collectivist basis. The men would have to be carefully selected, they would need to be hardy, enthusiastic, and socially minded. The land and forest, too, would have to be carefully chosen and government assistance would have to be continued, not as a dole nor as a lump sum subsidy but as a diminishing grant-in-aid over a period of years. The model community would jointly own the forest land and jointly operate it under the leadership of an elected council with the guidance of a forest ranger or resident forest engineer. Each cottage would also have attached a small mixed farm of cultivated land which would be individually owned and operated. This would give the ideal combination of forest-farm occupations, for winter and summer work, it would maintain the pride of private possession and home-making yet give the advantages for forest management of collectivist large-scale holdings. Such a programme might be conceived as a part of postwar reconstruction and it might well stimulate present small holders to more economic and cooperative use of the woodlands.

39 B.E.Fernow, Forest Conditions of Nova Scotia, for the Commission of Conservation. Ottawa (1912).

40 M.B. Morison, op. cit.

41 W.E.D.Halliday, op. cit.

42 S.A.Saunders, op. cit. Mr. Saunders' study contains a selected bibliography.

43 Professor Fleiger has found indications of the spruce budworm in epidemic proportions prior to the 1825 Miramichi fire.

be sure that such methods would yield the forest increment we want? Such a rigid policy runs the risk of frustration. Policy requires, shall we say, an annual cut of so many feet of yellow birch of suitable age. The borer appears in epidemic proportions and it becomes a race between axe and insect. Or the natural life cycle of the forest is towards the replacement of the species. Then artificial reforestation becomes necessary; a process which would cost us all our natural advantages over European competitors. Can we, on the other hand, adapt our industries to the natural life process of the forest? In part we are doing this. The portable mill, with all its evils, is an effort to adapt industry to the forest. Research in woods' products is an attempt to find wood uses and develop processes for wood treatment to make best use of the types available. One cannot say whether in the future we shall be pushed in the direction of scientific silviculture or if science will find a way to make use of the natural forest increment whatever it may be. But if the future holds its mysteries, so does the past, and those of the past are less impenetrable. We need to know more of the forest's life, of the history of tree communities, and this knowledge modern methods of forest research have made possible. It is not too much to hope that this research may be undertaken after the war.

3. The Lumber Industry.

The sawn lumber industry, which was the basis of New Brunswick's prosperity up to the end of reciprocity, 1866, was an expanding industry in Canada up to 1911, in which year the maximum Canadian cut was taken.⁴⁴ though shingle and lath production continued to expand,⁴⁵ reaching peaks in 1926. The opening of the Panama Canal at the beginning of the century had a stimulating effect on the Pacific Coast industry, and correspondingly checked expansion along the Atlantic seaboard.⁴⁶ The Maritime industry, however, by this time very sensitive to changes in the United States tariff, felt this new competition less than it might have by reason of the reductions of the Dingley tariff, 1909, from \$2.00 per 1,000 feet to \$1.25.⁴⁷ This was followed in 1913 by the admission of sawn logs duty free. Nevertheless the Maritime lumber industry, with the gradual diminution of stands of white pine was losing ground, losing ground in every sense, both to the newcomer, pulp and paper, to other regions in lumber, notably British Columbia, and absolutely, in the decline of the number of lumber establishments.⁴⁸ The war of 1914-1918 did not so much stimulate the industry to increased activity - it did to a minor degree - but rather postponed the period of decline.

⁴⁴ Census of Industry Annual "The Lumber Industry" 1933, p. 14.

⁴⁵ The Lumber Industry, 1933, p. 14.

⁴⁶ Cf. Lower et al., op. cit., Ch. VIII.

⁴⁷ Lower et al., op. cit., Editor's Preface (H.A. Innis) p.14-15.

⁴⁸ J.A. Guthrie, op. cit., p. 26.

The causes of this decline we have in part seen. On the production side they were the introduction of Pacific Coast timbers to the east, the rapid development of this industry with the most modern, mechanized processes, its superiority in timbers, and the gradual exhaustion of the stands of white pine,⁴⁹ the growing demand, which raised stumpage rates,⁵⁰ for spruce, for pulpwood and, in some cases, the recession of the stands from suitable driving rivers. But there were also unfavourable changes on the demand side. Building in Canada and the United States was increasingly in brick and stone, particularly in the large towns which were growing fastest. Substitute roofing materials came to have a great vogue, aided by municipal fire-zoning laws. Even for laths wood substitutes were introduced. Population growth, and with it building, was less rapid after the war. The consequence of increased competition and less rapid expansion of demand was a small decline in the number of establishments in New Brunswick from 270 in 1930 to 170 in 1933.⁵¹ In Nova Scotia there was no similar decline in number of establishments. The decline is best measured by the diminution in wood used. Between 1922 and 1937 the sawmills, including lath and shingle mills, of Nova Scotia and New Brunswick reduced their absorption of timber from 812,000 cords to 791,000 cords, while the pulp and paper mills increased theirs from 252,000 cords to 950,000 cords.⁵²

Thus the depression in this industry was not part of the ordinary trade cycle phenomenon. It had quite definitely set in well before the depression of other Maritime industries became apparent 1933-35, and though no doubt the general trade depression and the 1932 American tariff, which put on a duty of \$1.00 per thousand feet on sawn logs,⁵³ intensified the severity of the depression experienced by the lumber industry, we must regard the sawn lumber industry in the Maritime provinces as a specially depressed and declining industry up to 1939.

One effect of the distress of this industry in New Brunswick - not in Nova Scotia where there was no marked decline in the number of small establishments - was the weeding out of the less efficient establishments, particularly the smaller ones. As a result New Brunswick had, by 1937, far and away the largest average size of establishment of any province in Canada, except of course British Columbia.⁵⁴ This industry is not one which was included in our

⁴⁹ "Exhaustion" is too strong a term. In 1937 seventeen million board feet of white pine were cut in New Brunswick and six and a half million in Nova Scotia. "The Lumber Industry, 1936-7, p. 53.

⁵⁰ Stumpage is almost pure economic rent. Thus an increase in demand in one employment raises the "transfer cost" of the resource - in this case spruce - for any alternative employment. Cf. Joan Robinson, *The Economics of Imperfect Competition*, London (1936) Ch. 8.

⁵¹ The Lumber Industry, various years.

⁵² J.A. Guthrie, *op. cit.*, p. 26. Professor Guthrie's data are based on the Census of Industry annuals cited herein and on the Report of the Royal Commission on Pulpwood, Ottawa, 1924.

⁵³ E.A. Innis (ed.) in Preface to Lower *et al. op. cit.*, *loc. cit.*

⁵⁴ The Lumber Industry, 1936-7.

special investigation of size and efficiency of Maritime industrial establishments, so we are unable to say very definitely that the larger scale of establishment is connected with greater efficiency, though it is generally agreed that the large size of the typical British Columbia establishment is one of the sources of the superiority of the west coast industry. It is therefore probable that the New Brunswick industry, at least, was in as sound a competitive position at the start of the war as at any time since 1926.

The effects of the war on this industry can be briefly summarized. They have been a great expansion in general cutting and the development of certain new wood uses which may become of considerable importance. The Nova Scotia cut in 1937,⁵⁵ the best year since 1926 was 178,000,000 feet, board measure. In 1941-42, it was 327,500,000 feet, board measure.⁵⁶ The New Brunswick cut in 1937 was 307,000,000 board feet,⁵⁷ the 1941-42 figures are not yet obtainable but may be estimated as running well over 300,000,000 board feet. The new industries we have already noticed.⁵⁸ They are the provision of pit-props to the British government, the wooden box industry and veneer and ply-wood industry. None of these, of course, is a "new" industry in the sense of having engaged no entrepreneurs before the war; they are new only in extent and importance of production.⁵⁹ The great limitation on expansion of output is scarcity of labour. In the fourth year of the war operators say they cannot get labour to cut and haul trees, to work in the mills, to load timber and ship it.

⁵⁵ The Lumber Industry 1936-37, p. 53.

By years the total Nova Scotia cut was:

1937	178,000,000 ft. b.m.
1938	142,000,000 "
1939	153,000,000 "
1940	286,000,000 "
1941-42	327,000,000 "

⁵⁶ Report of the Department of Lands and Forests, Halifax, 1942.

⁵⁷ The Lumber Industry 1936-37, p. 53.

By years the total New Brunswick cut was:

1937	307,000,000 ft. b.m.
1938	223,000,000 "
1939	211,000,000 "
1940	297,000,000 "
1941-42	400,000,000 "

⁵⁸ See Chapter 2, sec. 3.

⁵⁹ There seem to be no sources of statistical data as to the volume of employment, output, or proportion of cut used by these industries. Even without it we know that these new developments were quantitatively important in accounting for some of the increased cut. We must be content with this although more exact information would help in assessing the future importance of these industries to Maritime lumbering.

For the same reason there is a serious shortage of firewood for fuel. The depressed lumber industry had, nevertheless, an excess labour supply prior to the war. Though wages were low and work part-time, men stayed on the farms and in the woods because industrial opportunities elsewhere were not available. But when, with war, these opportunities came, the men left for the armed services and industry. To retain a labour supply the depressed wage levels would have required a much more considerable adjustment than was possible under the wage ceiling. Thus the war has drained off the surplus labour supply from this industry, has improved its wage standards, though not to the point of eliminating the disadvantage of lumbermen as compared with other industrial workers.

We have now to assess the significance of these developments. Can the increased cut be maintained? Will these new industries be important forest outlets? Will they find peacetime uses for their products?

On the production side we have seen no reason to doubt the ability of the Maritime forests to sustain the rate of cut, speaking generally. But when we examine specific areas there are some qualifications to this general conclusion. In New Brunswick the most important forest for lumber purposes was once the Miramichi forest. This forest which was terribly damaged by the spruce budworm epidemic in 1913-21, had recovered more rapidly than the experts had dared hope, and, though the young growth was still too small for good timber it was coming up in good pulp types. A lot of the young growth was cut out for pitprops, but there is a difference of opinion as to whether the cut had the effect of "thinning" or whether it was too severe. In any case, with the greatly improved and cheaper method of "bull-dozing" forest roads the higher and older Miramichi forests are accessible for timber and the younger growth, if properly cut, may be used for pulp and eventually for lumber.

Perhaps the oldest community continuously dependent on sawn lumber in the Maritimes is that at the mouth of the Miramichi River in New Brunswick. At one time Chatham, with its beautiful harbour, was a flourishing port and the town itself busy and prosperous. Across the river lies Newcastle, the shire town, a railway centre and commercial community as well as a lumber town. Ludlow, Nelson and Loggieville are satellite communities. In 1921 the population of the towns was 8,013;⁶⁰ in 1941 it was 8,053.⁶¹ Perhaps 2,000 additional people live in the satellite villages and immediately adjoining country. In 1935 only one mill in Chatham was operating, part-time, and a mill in Nelson. A ship in harbour was a rare sight.

⁶⁰ Sixth Census of Canada.

⁶¹ Eighth Census of Canada.

Though the wartime lumber trade and the existence nearby of a large Air Force establishment have given the towns a busy wartime appearance no one is very hopeful about the fate of this community after the war. The New Brunswick government has considered the possibility of establishing a pulpwood mill at the mouth of the Miramichi. Whether this, or a development of the lumber industry or some other wood-using industry, would be most desirable would depend both on the nature of demand and the type of forest growing on the Miramichi watershed. Shortage of power would eliminate the possibility of a groundwood pulp mill, and it is unlikely that for some time to come the forest supply of mature wood suitable for lumber would be adequate to support further sawmills. Perhaps a cellulose mill or some woodworking establishments would be a more promising development. As to this a further examination of the possibilities of these industries may help.

The great expansion in veneers and plywoods has depended on the stands of yellow birch. These stands have been extensively cut, but the cut has been not simply response to wartime demand, but, in part at least, to save good wood from the yellow birch borer. Even if this infestation is controlled, or comes to a natural end, the stands of yellow birch will probably not sustain a veneer and hardwood ply industry on the present wartime level, although it is probable that a veneer industry on the pre-war level could be sustained.⁶² The experience with the yellow birch is an example of the sort of thing that can happen when the comfortable philosophy that natural growth is adequate to replace the loss from any sort of cutting is believed in and acted upon in this field. It was the failure to cut mature trees, simply because there seemed at the time no market for the wood, that let the New Brunswick stands become ripe for the borer. Now, when on these valuable stands a most lucrative industry could be established, the trees have died, so that it is improbable that any considerable development of the industry is possible. Nor will natural growth replace these stands in ten or twenty years. In a hundred years it might, but the need for the wood is now.

On the demand side we may entertain the hope that wartime demands will find substitutes in part from the demands for postwar building. Canada is planning extensive rehousing after the war. It is possible that over a ten year period a programme of one half million units will be adopted. On the basis of Mr. Firestone's calculations⁶³ this would yield a disbursement to the lumber industry of \$430,000,000, or \$43,000,000 a year. If this were distributed approximately according to the present output of the industry it would give about \$2,500,000 per annum to New Brunswick

⁶² From minutes of an interview with a member of the industry.

⁶³ O.J. Firestone, "Postwar Residential Construction", The Canadian Banker, 1943.

and about \$1,500,000 to Nova Scotia. These figures represent an increase of about 50% over the peacetime (1939) gross output of lumber in the Maritimes and would, given the prewar proportion of manpower to mill, give employment to an additional 2,000 men. This is in itself an expansion greater than that brought about by the war and, if the Maritime forests would enable the Maritime industry to get the share of the estimated demand we have calculated, it would mean an expansion of the industry which would more than offset the cessation of war demands.

Also hopeful is the development, under the guidance of the Department of Munitions and Supply of precision sawing and trimming and dimensional cutting in the wooden box industry. A trend in the cheap furniture and house fittings industries is towards the assembly of pieces sawn to standard dimensions. One large Maritime concern intends after the war to enter the furniture industry and to use Maritime cut parts.⁶⁴ This should enable the woodworking industry and the wartime box industry to continue on a larger scale than in prewar days. One might add at this point that one cannot help but be impressed by the possibilities of the woodworking industries of these provinces, given the initiative and capital necessary to operate on sufficient scale. Wooden interior fittings, show cases, refrigerator cases, panelling, interiors to individual order, wooden furniture, desks, school fittings, office furniture are all lines in which in Canada there will be after the war a good market. When one considers the deferred building, both of public buildings such as schools and hospitals and of private buildings of all sorts, and the probable public construction programme which will follow the war, it is apparent that demand for all these products will be keen. Most of them are products which essentially can be manufactured by firms on a small scale of undertaking. Mass produced furniture is cheap furniture. Expensive furniture, interior fittings to order, built-in showcases, or commercial refrigerator cases, office or other furniture, fittings and panelling to order are by their very nature lines of enterprize which require the individual attention of skilled craftsmen and the adaptability of the small firm, and in which the economies of largescale manufacture are not apparent. With the forest resource and the supply of skilled craftsmen the Maritimes ought to be able to enjoy at least equal advantages in these industries. Indeed where they have already existed Maritime establishments have done well against any competition.⁶⁵ If the war has encouraged development along these lines, as it has done to

⁶⁴ From minutes of an interview with a member of the industry.

⁶⁵ This, and the preceding argument, is based on confidential information given in conversation by a member of the industry.

some small extent, the result may be more permanently beneficial than the transient profits of wartime trade in boxes or sawn lumber.

Thus our study of the lumber industry would suggest that the effects of the war have provided a stimulus which, while it probably will not be maintained and which may have led to some unwise cutting in certain areas, has nevertheless directed the industry into lines which may be promising if postwar demand in housing, furniture and interior fittings is anything like as lively as now seems likely. It is therefore possible that the industry though it may never reach its previous peak cut may nevertheless come to the end of its decline and may, in consequence of the war, enjoy a degree of prosperity and provide a level of employment considerably in excess of the prewar levels.

Whether or not this optimistic view may reasonably be entertained will depend, in our view, not on the estimation of demand, but on the policy adopted towards cutting. The supply of suitable timber trees will not last if the pulp companies continue to grind up first class timber trees for pulp, if experienced lumbermen continue to regard, as one does, a six-inch white pine as "the ideal tree to cut". The increase in cutting to meet the probable peacetime demand for timber is not such as to exceed the natural forest increment if that increment is maintained and increased by proper silviculture. But if proper cutting methods are not adopted it is unlikely, however lively the demand, that the Maritimes will get any share of the postwar expansion. It must be remembered that if the labour is to be obtained higher wages will have to be paid. It is quite apparent that the lumber industry cannot continue with starvation wages. If labour costs are to be higher, wood costs must be low, and to keep them low, accessible stands must mature regularly for the axe. If the forests are treated to sustain the yield and if demand expands as anticipated the postwar employment possibilities of the lumber industry may be roughly estimated.

The lumber industry in New Brunswick at one time employed between 3,000 to 4,000 workers, in Nova Scotia over 2,000. In 1938 these figures stood at 2,015 in New Brunswick and 1,245 in Nova Scotia.⁶⁶ Population in the lumber areas never adjusted itself to this change, and the war has prevented the normal adjustment from taking place. Apart from the possibility of a pick-up in sawn lumber from postwar housing and the possible development of dimensional cutting for furniture and interior equipment industries we can expect employment to fall after the war from its present level of 2,652 in New Brunswick and 2,472 in Nova Scotia,⁶⁷ to the 1938 or 1939 level. This would mean a reduction in employment of just under 1,000 men. If the housing boom requires 2,000 men additional⁶⁸ to the 1938 employment level, this will leave a surplus of

⁶⁶ The Lumber Industry Annual, various years.

⁶⁷ The Lumber Industry Annual, 1940.

⁶⁸ See p. 106.

1,000 men to be drawn from returned soldiers and men in war industry. The introduction of mechanized methods in the woods, a development in its early stages in Quebec and the Maritimes,⁶⁹ may, of course, reduce the volume of employment required to maintain the volume of cut. But on the whole, considering, too, the possibilities of other lumber processing that have already been noted, it would seem that the lumber industry might well be a "reception industry" in the Maritimes after the war, that is an industry which could absorb men from the armed forces and war industry. Its possibilities as a postwar reception industry depend, however, on the payment of wages returned soldiers and warworkers might reasonably expect to receive and on a policy of forest management that will maintain the productivity of the forest resource.

4. The Pulp, Paper and Newsprint Paper Industries.

This group of industries, comparatively a newcomer among the wood-using manufactures, has grown, for the most part within the present century,⁷⁰ to be the most important of all forest-consuming industries, and its growth is directly related to the expansion of the popular newspaper press.⁷¹ Canada, because of her great forest resources and her numerous driving streams became early one of the world's prime sources of pulpwood, and the desire of the Canadian provinces to build up processing industries, a desire that took the form of putting export duties and embargoes on the export of unprocessed pulpwood,⁷² coupled with the potentiality of cheap hydro-electric power led to the establishment in Canada of a pulp, paper and newsprint paper industry. The Canadian industry has been peculiarly dependent on the newspaper. Whereas in the United States, the world's biggest wood pulp producer, five-sixths of the output is chemical pulp, and in Sweden and Finland, Canada's other most important rivals, four-fifths and two-thirds, respectively, of the total tonnages are of chemical pulp, the Canadian output is three-fifths mechanical.⁷³ This means that Canada, though ranking second among pulp producers, ranks first among producers of mechanical pulp

⁶⁹ See A. Keroloff, "Pulpwood Cutting" - Canadian Pulp and Paper Association, Montreal (1941).

⁷⁰ Cf. J.A. Guthrie, op. cit.

⁷¹ American newsprint consumption which amounts to nearly half the world consumption and which is, in any case, most significant from the Canadian point of view, increased from 8 lbs. per capita in 1840 to 54 lbs. per capita in 1939 and absolute totals of apparent consumption increased during the same period from 196,000 tons to 3,541,000 tons. Guthrie, op. cit., p. 234.

⁷² In 1900 Quebec led the way by reducing stumpage rates for wood processed in the province. Ontario in 1902 prohibited export of pulpwood and New Brunswick followed in 1911. In 1926 Nova Scotia put an embargo on export of pulpwood.

⁷³ World Pulp Statistics, 1927-37. The U.S. Pulp Producers' Association, New York, (1938).

for newsprint.⁷⁴ This dependence of the Canadian industry on newspaper consumption, particularly newspaper consumption in the United States, accounts for its rapid growth during the first quarter of this century and accounts also, in part, for its great instability. By 1926 American population growth was going on at a less rapid rate and, more important, popular education and newspaper advertising techniques had reached by that time the peak of their development and other advertising media and other channels of popular expression seemed to suggest that the period of rapid expansion in newspaper lineage and circulation had come to an end. The depression, of course, hit the optimistically over-capitalized⁷⁵ paper industry very hard. In spite of the fact that by 1926 the signs were clear that the rate of expansion of demand was declining⁷⁶ and going to decline still more, the industry between that

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World Pulp Production 1937 (short tons)

	Wood Pulp All Grades	Mechanical Pulp (approximate)
World Production	26,121,000	
U.S.A.	6,600,000	1,000,000
Canada	4,992,000	3,000,000
Sweden	3,767,000	750,000
Germany	2,755,000	700,000
Finland	2,380,000	800,000

Based on World Pulp Statistics, 1927-37.

⁷⁵ J.A. Guthrie, op. cit., p. 68.

⁷⁶ Following are annual rates of expansion in U.S. consumption calculated on data from Newsprint Service Bureau, Bulletin No. 265, (N.Y. 1940) and New York contract prices, f.o.b. press room, from J.A. Guthrie, op. cit., p. 247.

	<u>Rate of Expansion of U.S. Consumption</u>	<u>Price N.Y.</u>
1914	7%	\$ 43.00
1915	-2%	41.60
1916	10%	42.00
1917	6%	68.78
1918	-3%	73.49
1919	9%	80.40
1920	17%	114.70
1921	-9%	111.35
1922	22%	77.20
1923	13%	81.80
1924	-7%	80.80
1925	3%	76.80
1926	16%	71.80
1927	-3%	71.80
1928	3%	67.50
1929	5%	62.00
1930	-5%	62.00

year and 1930 increased its daily capacity in Canada by 100%, from 4,157 tons to 8,323 tons.⁷⁷ It was during this period, which saw also considerable technological progress, that the big development took place in the Maritime provinces, a development completed only in time to suffer the full effects of the depression. This was an inauspicious start for the Maritime industry, which in its first decade experienced bankruptcy, reorganization, heavy unemployment and all the ills of an especially hardhit industry in a depression period. But the industry in other regions was experiencing equal difficulties. The system of mergers and price leadership broke under the strain,⁷⁸ price competition reduced the price to as low as \$40.00 a ton,⁷⁹ in 1934, the industry, in which a lot of promotional capital had been introduced during the period of amalgamation,⁸⁰ had to go through the wringer before it could hope to meet costs, and in the process of reorganization and in the subsequent inter-regional competition there is no prima facie reason to suppose that the industry in the Maritime provinces has been under any handicap. We propose to inquire more carefully into the comparative position of the Maritime section of the industry so as to be able to evaluate the wartime changes as they may affect the future competitive position of this section and its ability to employ labour at decent wages and to maintain an export surplus to pay a large share of the imports of the Maritimes.

5. Costs of Pulpwood at the Mill.

Professor Guthrie shows that what he calls the eastern Canadian region, Quebec, that is, and the Maritime provinces, has certain cost advantages over the Great Lakes region, Ontario and

77 J.A. Guthrie, op. cit., p. 59.

78 J.A. Guthrie, op. cit., Ch. VIII.

79 Ibid., p. 248.

80 Ibid., p. 66 et seq.

Manitoba, and over American competitors.⁸¹ An analysis of costs shows that total costs are made up of the following elements:

- Wood Costs (a. Cost of the standing timber
- (b. Cost of cutting
- (c. Cost of hauling and driving
- Mill Costs (d. Fixed capital cost
- (e. Labour and management cost
- (f. Fuel and power cost
- (g. Other material costs
- Merchandising Costs (h. Advertising and sales promotion
- (i. Transport

⁸¹ It is very hard to get costs in Maritime woods operations and mills. Professor Guthrie's table for total costs, which we give below, is for Quebec, Ontario, the Pacific Coast, Maine and New York, and the Lake States. Of these, of course, the Lake States and the Pacific Coast are not serious competitors of the Maritime industry. Professor Guthrie's table does not give figures for the Maritime provinces and the research into pulpwood costs of the Forest Research branch of the Pulp and Paper Institute does not as yet cover costs in the Maritimes. We have to rely on other than exact data for our estimate of the cost of wood to the Maritime mills. We shall show reason to believe that this cost is close to that of Quebec. Hence the following table gives probably a fair presentation of the relative cost position of the Maritime mills.

Total Cost of Producing Newsprint in various
Regions (1928)

Cost element	Dollars per ton		
	Ontario	Quebec	Maine and New York
Wood	19.50	19.70	24.20
Labour	4.50	4.16	5.50
Power	3.90	3.90	4.10
Fuel	4.40	4.00	4.40
Materials & expenses	13.35	11.31	13.45
Total	<u>45.65</u>	<u>43.07</u>	<u>51.65</u>
Transportation to market	<u>7.60</u>	<u>7.24</u>	<u>6.05</u>
Total	<u>53.25</u>	<u>50.31</u>	<u>57.20</u>

The cost of standing timber is an economic rent, that is it is price-determined.⁸² Canadian forests are treated as freely-provided, naturally regenerative gifts of nature. There is no cost of tree production, at least no financial cost of tree production is incurred by woods operators. As a result any reward paid for the tree as such, is in the nature of a pure rent and will be greater or less according to whether the resource is sufficiently superior in growth, density, topography or situation, as to provide any surplus over all other costs. Such a price-determined surplus is the basis of "stumpage". Thus high stumpage is a characteristic not of high costs but of low comparative costs, it measures the difference between the ruling New York price and the sum of other costs. Usually one finds the highest stumpage in forests, say in New York and Maine, which are still accessible to the American mills, the lowest stumpage in the less accessible forests of these states and a medium stumpage in Quebec and Maritime forests which are more workable than the gradually depleting American forests, but less well situated with respect to demand than the best American limits. Unfortunately stumpage records for Canadian forests are incomplete and difficult to obtain⁸³ and would appear to vary not as between provinces but, as one would expect, as between stands. Some companies put higher stumpage valuations on some stands within their limits than on others. The differentials appearing in stumpage valuations for New Brunswick forests would indicate, what in Section 2 of this chapter we have already intimated, namely, that the cut in Maritime limits has been reducing the standing merchantable timber in the accessible areas of the limits. Hence stumpage on the remaining timber in these areas is high. Stumpage on the less accessible stands, costly to operate, is a problematic and doubtful value approaching the limit of zero. Now we must point out here that if nothing is done to change present cutting policies the companies will be faced with cutting out all their high stumpage wood, either at a loss - if they arbitrarily reduce stumpage valuations - or at high cost if they include in their cost full stumpage values, or they will have to incur heavy cutting and haulage costs to operate in low stumpage - less accessible - stands. There is nothing in the argument from stumpage valuations to encourage optimism or complacency about the present limits and cutting policies of Maritime companies.

Cutting costs proper depend on a great variety of factors, topography, density of stand, wood density or specific gravity, labour skills and experience, wage levels, mechanization and

⁸². J.A. Guthrie, op. cit., p. 136.

⁸³. "Only very fragmentary information is available to indicate stumpage values". J.A. Guthrie, op. cit., p. 146.

climate.⁸⁴ Mr. Koroleff and his associates in their study of cutting techniques find wide variations in costs and efficiency,⁸⁵ but these seem to show very little correlation with provincial regions. The only factor which shows a regional correlation is wages, which are lower in Quebec and the Maritime provinces than in other areas, and this accounts for the slight advantage in cutting costs, on the average, which Professor Guthrie finds is enjoyed by the eastern region.⁸⁶ This is, however, purely an average advantage. There are many limits in the Maritimes where, by reason of bad density, sappy wood, or for other reasons, cutting costs are high. It is also said,⁸⁷ that there is, perhaps, on the average, a tendency in the Maritimes, particularly in New Brunswick, where the tradition of the axe is very strong, to favour the retention of the axe for operations more efficiently conducted by the saw,⁸⁸ and also a bias towards winter cutting because of the dual occupations of the people. This bias is unfavourable to the greatest efficiency which Mr. Koroleff shows is obtained in summer cutting.⁸⁹ It is possible that the work now being done by the Forest Research Branch of the Canadian Pulp and Paper Association will lead to greater efficiency in woods operations by Maritime operators. It is both dangerous and anti-social to rely on less than average wage rates for competitive advantage.

Hauling costs also show considerable variations, which like cutting costs, depend on a group of factors little related to regional or provincial boundaries, though here again the wage differential favours Quebec and the Maritime provinces and accounts for their slight, on the average, advantage,⁹⁰ and, of course, the famous horses that couldn't understand French appear to have caused some temporary embarrassment to some Quebec operators.⁹¹ The data examined by Messrs. Koroleff, Walker and Stevens suggest the cost superiority of chain hot-skidding,⁹² but their data re-

⁸⁴ A. Koroleff, *Pulpwood Cutting - Efficiency of Technique*. Canada Pulp and Paper Association, Montreal (1941).

⁸⁵ A. Koroleff, *op. cit.*

⁸⁶ J.A. Guthrie, *op. cit.*, p. 142.

⁸⁷ By a research forest engineer, in conversation.

⁸⁸ Cf. A. Koroleff, *op. cit.*, p. 8.

⁸⁹ Cf. A. Koroleff, *op. cit.*, p. 8.

⁹⁰ Cf. J.A. Guthrie, *loc. cit.*

⁹¹ Some western horses introduced into Quebec forests were unable to understand, and consequently to obey, the words of command of Canadian teamsters. Some confusion, which was reflected in hauling efficiency, resulted. See, A. Koroleff, J.F. Walker and D.R. Stevens, *Pulpwood Skidding with Horses*, Pulp and Paper Research Institute of Canada, Montreal (1943) pp. 115-116.

⁹² Koroleff, Walker and Stevens, *op. cit.*, Table 12.

present a small sample and are hardly adequate to sustain definitive conclusions; and, in any case, they have no evidence to suggest technical differences in skidding and hauling as between provinces.

We conclude, therefore, that the Maritimes and Quebec, which enjoy no great advantages either natural or in efficiency of technique in bringing the wood to the mill have a small cost advantage over their competitors in eastern North America which is based largely on lower wage scales. Provincial minimum wage legislation, for woods operations, now effective in Quebec, New Brunswick and Nova Scotia as well as in Ontario has reduced, but slightly, this differential. On the whole, the tendency of this legislation has been to restrain wages of the more skilled men while protecting the less skilled. If the present wartime trend towards Dominion regulation of labour conditions and wages⁹³ is continued after the war either by arrangement with the provinces or by constitutional amendment, it may be that the advantage of the lower wage-scale - it is an "advantage" only from the operator's point of view, as we see it it must be reckoned a social disadvantage - may gradually disappear. In that event the Maritimes would be left with only such slight advantages as are given by their topography and the natural regenerative potency of their forests, advantages which may be dissipated by unwise cutting policies.⁹⁴

6. The Manufacture of Pulp and Paper.

Professor Guthrie has shown that the advantages enjoyed by the mills of Quebec and the Maritime provinces over their American and Great Lakes competitors in the supply of wood are maintained

⁹³ As under the wage ceiling order in council.

⁹⁴ It may perhaps be felt that the Maritime companies enjoy an advantage from the proportion of pulpwood they receive from small woodlot operators. We have purposely said little of this because in our opinion it is a doubtful advantage. In the first place our figures, see Section 2. of this chapter, indicate that the large holdings cover more than 50% of the forested land of the Maritimes. The figures for Quebec are not much higher. Again Professor Guthrie shows, p. 133, the price of purchased wood from farmers varies sometimes a bit above, sometimes a bit below the cost of limit wood. On the whole it was, even during the period he examines, 1929-35, rather above than below the cost of limit wood. We have finally shown reason to believe that, unless there is a reorganization of the woodlot system, the farmers' woodlots will be less and less able to provide an important proportion of the pulpwood requirements of the mills.

and augmented in the manufacture of this raw material into newsprint.⁹⁵ But his material does not enable us to speak with any confidence of Maritime mills, which, of course, would form an insignificant fraction of his Quebec and Maritime category. We have consequently tried to make certain comparisons between the industry in the Maritimes and Quebec, a comparison based on the Census of Industry returns, which though in no way comparable with the cost figures used by Professor Guthrie, nevertheless support certain conclusions as to the relative efficiency of the industry in Quebec and the Maritimes.⁹⁶

As in the case of the other manufacturing industries that we studied (see Chapter 3) we compared the rate of development of the industry in the Maritimes and Quebec, we attempted to discover some indication of the relation between size of establishment and efficiency, and attempted to evaluate "efficiency" - admittedly an arbitrary standard - by the net value productivity and ability to pay wages. If capital costs be put to one side, as they must be in such an industry as this one, the efficiency of the company in the more usual business sense will be indicated by taking from our figures the net value productivity of the wage dollar. We have not attempted to reach absolute conclusions as to the net advantage or disadvantage enjoyed by Maritime firms in interregional competition, but have concentrated on - as being historically more significant - the trend over a period of years, showing whether or not the Maritime establishments have been holding their own, gaining or losing, as compared with their Quebec competitors. It should always be remembered that their position vis-a-vis Quebec, if favourable, fixes their position with respect to other competitors in eastern and central North America.

The growth of the industry is indicated by the increase in the number of establishments, of employment and of rated capacity. It should be noted that of these indices the last is the most important. The number of establishments may actually decline because of the appearance of new, more efficient and much larger establishments which cause a high mortality among smaller and less efficient plants. Employment varies, as does actual physical output, with the business cycle and also may decline because of the substitution of machinery for manpower so that it is an unreliable

⁹⁵ J.A. Guthrie, *op. cit.*, p. 201.

⁹⁶ All statistical and other factual data in this section come from our study of the Census of Industry returns and, for economy, will not be documented in *passim*. We are indebted to the Dominion Bureau of Statistics for permission to make use of this material and to publish the results.

guide to the longterm, non-cyclical trend. Capital invested is also a poor guide (see Chapter 3) because of different accounting methods, the unreliability of the returns and the tendency to depreciate capital worth in depression periods and to appreciate it in boom periods without regard to actual changes in real capital or size of plant.

The following tables show the growth of the industry in Quebec and the Maritime provinces from 1920-40.

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New Entries and Mortality Rates - Quebec and Maritimes Compared

QUEBEC

	Net Mortality	Net Entry	Growth %
1920	-	45**	-
1926	-	5	11
1930	1	-	-2
1933	7	-	-12½
1937	-	1	2
1938	-	1	2
1939	-	-	-
1940	-	2	4
Twenty-year period	-	1	2

* 45 firms operating in 1920

MARITIMES

1920	-	12**	-
1926	-	1	8
1930	-	-	-
1933	2	-	15
1937	-	-	-
1938	-	-	-
1939	-	-	-
1940	-	-	-
Twenty-Year period	1	-	-8

** 12 firms operating in 1920

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Size of Establishments

Median establishments in ton units of pulp capacity.

Quebec and Maritimes 1920 - 40.

000 omitted.

	Quebec	Maritimes
1920	19.5	10
1926	16.4	11.5
1930	37.5	29.2
1933	37.5	31.2
1937	62.5	37.5
1938	62.5	37.5
1939	62.5	37.5
1940	50*	37.5*

* Tentative figures

Rates of growth 1920 - 1939	Quebec	320.5%
" " " 1920 - 1939	Maritimes	375.5%

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Average Employment by Years 1920-40

QUEBEC		MARITIMES	
No. of employees per establishment	Total Employment	No. of employees per establishment	Total Employment
1920	347	250	2,460
1926	320	146	1,904
1930	343	245	3,188
1933	273	237	2,602
1937	392	306	3,366
1938	352	284	3,122
1939	351	289	3,176
1940	378	329	3,614

Thus the number of establishments operating in the Maritimes actually declined slightly over the twenty-year period, the growth in the size of establishments was enormous, and definitely reduced the differential in size as between the typical Quebec and typical Maritime establishment over the twenty-year period. In 1920 the

typical Quebec establishment was 100% larger than the typical Maritime establishment; in 1940 it was only 33 1/3% larger. Average employment, per establishment, a less reliable guide which reflects cyclical change, nevertheless reveals the same trend, with the average Maritime establishment a much smaller employer in 1920, but by 1940, approaching its average Quebec competitor in size. Total employment reflects a much larger proportionate gain for the Maritime industry than for the Quebec industry. There is no escaping the conclusion of these figures that the industry in the Maritimes has had a most healthy comparative rate of growth. But we should be careful of concluding too much from this. The industry, as we have noted, was established on a large scale rather late in the Maritimes, in the search for new forests and new mill sites during the period of expansion in the 1920s. It might be that these new locations, the last to be operated, were marginal, the least efficient, and hence would be the first to suffer in any rationalization or contraction of the industry. We must, therefore, ask if there are any indications of the comparative technical efficiency of the industry.

Though "a 250-ton mill is generally considered to be the smallest that can operate efficiently"⁹⁷ in the newsprint industry, our evidence suggests that smaller mills can achieve optimum efficiency in pulpmaking and other lines of paper making. The prima facie evidence suggests, of course, that up to a certain limit, efficiency will increase with size of establishment, that beyond this point the rising costs of management will offset the economies of further increases in scale of establishment. But these theoretic expectations must be tested against the facts. Taking as our test of efficiency the net value productivity of labour we were able to correlate efficiency against size of establishment (measured in tonnage capacity per annum),⁹⁸ with the results shown by the following regression equations:

		Quebec		Maritimes
1930	r equals	.61	r equals	.87
	y "	84x plus 23y	y "	2.31x plus 107
1940	r "	.74	r "	.81
	y "	.97x plus 332	y "	1.64x plus 231

These results indicate a definite positive relation between efficiency and size of establishment.

With so small a number of instances, however, we were sceptical of the conclusive value of these equations and consequently

⁹⁷ J.A. Guthrie, op. cit., p. 94.

⁹⁸ Daily capacities may be found by dividing the annual figure by 300.

plotted the instances on scatter diagrams. These showed most interesting characteristics. The scatter diagrams showed three concentrations of size, one of small establishments engaged in the manufacture of groundwood pulp and of bond paper mills, one of pulp and paper plants grouped about the median, and one of large newsprint and pulp plants. All three modes shifted to the right over the twenty year period, showing the tendency to largescale organization was established for all three types.⁹⁹ We were also able to observe from these scatter diagrams the point beyond which increases in size did not bring increases in efficiency. In 1940 this point was about 200,000 tons, or 666 tons daily capacity. This suggests that though 250 tons may be the minimum size for technical efficiency, increases in scale beyond this minimum bring further economies of scale. The equations indicate for Quebec, also, an increase, not only in scale, but an increasing differential advantage enjoyed by the largescale over the smallscale establishment over the two year period. The Maritime figures do not show this trend, but they do show even more markedly than the Quebec figures the relation between scale of enterprise and efficiency, and, taken from 1920, they show the trend in the Maritimes to enterprises of sufficient scale to enjoy the economies and efficiencies of largescale establishments. Scatter diagrams for the Maritime industry indicate that the net productivity of the smaller pulp mills, while low, was nearer to that of similar mills in Quebec in 1940 than in 1930, and they showed the larger Maritime mills equal in net productivity to the better, if not the best, Quebec mills. Thus in 1940 there were four Maritime mills of more than 100,000 tons capacity with net labour productivities, well correlated with size, of \$5,250, \$5,400, \$7,000 and \$6,800. In the same year mills in Quebec of the same range of size had the following net labour productivities:

⁹⁹ In order to make comparisons between pulp mills, pulp and paper mills and newsprint mills, all capacities were reduced to the single unit of pulp tonnage, by multiplying paper capacity by the conversion factor of pulp utilized divided by paper produced. This conversion factor is unjustified for comparing chemical and groundwood plants, but because of the uniform relation between pulp utilization and paper production within any single plant or type of plant it would appear satisfactory as a measure of changes of size of the same establishments over a period of years.

Mill	\$
1 ...	5,700
2 ...	4,100
3 ...	4,200
4 ...	6,400
5 ...	6,000
6 ...	4,500
7 ...	7,300
8 ...	7,800
9 ...	8,000
10 ...	5,000

The Maritime mills are well up to the standard of the Quebec mills.

The correlation of men employed with size of establishment, a useful methodological test for the reliability of our unit of size, also threw up some significant information. The regression equations were as follows:

1926	r equals .9	y equals 3.5x plus 108
1933	r " .7	y " 1.5x plus 130
1939	r " .84	y " 1.8x plus 168

These equations, besides serving to establish our unit of size, show the change in the ratio of real capital to manpower. The size of the constant in the "y equation" is the guide. "y" represents the number of men employed and as the number of men employed increases with the tonnage capacity, it increases in some relation to "x", (tonnage capacity) plus some constant known from our calculations of the deviations. Thus in 1926 the number of men employed in an establishment of 10,000 tons would be 35 plus 108, but in an establishment of 100,000 tons it would be 350 plus 108, which means that in a larger establishment there will be a smaller ratio of men to a unit of physical plant than in a smaller plant, and the difference in the ratios will be greater, the larger the value of the constant. Thus the increase in the size of the constant in the equations from 1926 - 1940 is an indication both of the growing substitution of machine for manpower and of the increasing technical advantages of the larger production units.

The wage trend, a partial indication of the healthiness of an industry, is shown in the following table:

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Average Wages by Years 1920 - 1940

<u>Year</u>	<u>QUEBEC</u>	<u>MARITIMES</u>
	<u>Average annual earnings</u>	<u>Average annual earnings</u>
	\$	\$
1920	1,341	1,142
1926	1,293	1,018
1930	1,322	1,244
1933	1,026	995
1937	1,370	1,288
1938	1,321	1,197
1939	1,377	1,246
1940	1,564	1,392

Now we know that there is a general wage differential for manufacturing industries as between Quebec and the Maritimes so that we might expect Maritime paper mill wages to be somewhat lower than those of Quebec (see Chapter 3). Were they markedly lower than Quebec they might indicate a comparatively depressed industry, but since they do not run below Quebec wages by more than the average provincial differential there is no indication from comparative wage levels of any inferiority in the Maritime industry. Indeed, from the point of view of the companies, the lower wage level in the Maritimes is an advantage. It is apparent from our tables that the net value productivity of the wage dollar in the Maritime industry is distinctly higher than the average for the Quebec industry. This is, however, as we have said, no real advantage. It is the desire of the people of the Maritimes to raise their living standards to the level of the other provinces, not to attract doubtful industries by lowpaid labour. The fact that over the period between the two fairly "normal" years 1926 - 1939, Maritime paper mill wages increased by 40% while Quebec wages in this industry increased by less than 25% is a sign that with proper organization of the workers, the Maritime industry has developed so that, to enjoy competitive equality, it does not need to take advantage of "cheap labour".

Although power costs have been regarded as decisive in determining the location of pulp and paper mills the real disadvantage of Maritime mills here does not seem to have been of great importance. Power costs in Maritime mills averaged considerably higher than in Quebec, in some cases running double the average Quebec cost, and most Maritime mills have to maintain steam standby plants because Maritime streams have a scanty flow in some seasons. Nevertheless the higher power costs do not seem to have seriously handicapped the Maritime industry.

The conclusions which we reach from this study of the sta-

tistical returns are borne out by the attitude of men in the industry.¹⁰⁰ There would seem to be no feeling that the Maritime processing industry was inferior in techniques or in its cost position to its Quebec competitors. We may consequently conclude, with some assurance, that so far as production is concerned, both in the costs of supplying wood and in the manufacturing process, the Maritime industry has developed to the point at least of equality with any of its regional competitors.¹⁰¹

Section 7. Markets.

The most important Canadian woodpulp product is newsprint, which takes over half the Canadian pulp output, and the most important newsprint market is the eastern seaboard of the United States. Professor Guthrie in his admirable consumption map¹⁰² shows most graphically the great concentration of newsprint consumption in the Boston-New York area, an area to which the Maritime producers have easy access. Although Ontario, New York and Maine mills have shorter and cheaper rail hauls to this market than the Quebec-Maritime mills,¹⁰³ the Maritime mills have an advantage here over their Quebec competitors in that they can ship by water, some of them the year around. It is probable, too, that with little difficulty the Baie Chaleur could be kept open in the winter, thus adding to the advantages of the Bathurst, Dalhousie and Atholville mills. A larger percentage of the output than is usual in Canada is shipped to overseas markets, access to which is easier for Maritime producers than for any other North American producers.

But access to a market, particularly a product which is at least partially differentiated, requires more than good transport facilities. Market "connections" are most important. On the whole Canadian market connections are such that the Canadian product is regularly (in peacetime) marketed in the United States at a considerable price margin over the Scandinavian product. This may be partly accounted for by the financial interest of American newsprint consumers in the Canadian industry, but it is partly because of the differentiation of product. All newsprint does not look or feel the same. All is not equally strong for the presses.

¹⁰⁰ From records of conversations with leading members of the industry.

¹⁰¹ Need we remind our readers of the qualification to this optimistic conclusion, that this superiority of Quebec and the Maritimes rests on a method of cutting which does not promise, if continued, to afford the same superiority for the future that it has given in the past.

¹⁰² J.A. Guthrie, op. cit., p. 85.

¹⁰³ J.A. Guthrie, op. cit., p. 203-4.

A newspaper gets to have a certain appearance and texture; its machines are geared to a certain tensile strength of newsprint. It can change the quality and type of paper it uses, but it is reluctant to do so. Thus, to have certain established market connections, is a most important advantage in the market. Of the larger Maritime mills one¹⁰⁴ has definite, longstanding connections with powerful New England press interests, one is a member of the International Paper group and has, of course, all the facilities of their marketing organization and connections. A third mill, also engaged in newsprint production as well as in the production of sulphite and sulphate products, has overseas connections. Although less definite in its marketing arrangements as it is less specialized in its products, it is believed in consequence to enjoy more resistance in times of depression. The other large mills of the Maritimes are connected by ownership with an American mill and their product is marketed in the United States where for catalogue paper and the like, also a differentiated product, they have definite and established connections.

These connections are not proof against being shaken by depression or disturbed if large price differentials appear in favour of an alternative product, or if the higher cost of Maritime wood as the accessible stands are destroyed raises Maritime costs, but, other things remaining more or less undisturbed, they seem to ensure the Maritime industry fair market access. Thus, other things being undisturbed, the Maritime industry, at the start of the war held a strong position in the inter-regional competition of the pulp and paper industry.

Section 8. Effects of the War, Evaluation and Conclusion.

But the war disturbed things. How it has done so, and what the permanent effects may be it is now our business to assess. The effects of the war as apparent to date can be stated in a paragraph and the disproportionate amount of space we have spent on an analysis of the industrial structure is only justified by the fact that it is only against this that the wartime effects can be evaluated.

The war has led to an increased demand for newsprint and for other pulp products, notably kraft boxes and wrappings, and this demand has come in part from other than the usual peacetime markets; it has led to an increased cut, frequently to the cutting of "nearer pulpwood areas that were being kept to 'sweeten' poorer and distant ones";¹⁰⁵ it has led to an increase in output from a Maritime average

¹⁰⁴ This and the following information rests on records of conversations with members of the industry.

¹⁰⁵ R.H. Coats in "Reconstruction in Canada", (ed.C.A.Ashley) Toronto, 1943, p. 7.

of about 70% of capacity in 1938-9 to 100% capacity in 1941.¹⁰⁶ This increase was not however maintained.¹⁰⁷ There have been shortages of certain types of labour, of certain materials, and of pulpwood; and machine maintenance has become increasingly difficult.¹⁰⁸ There have been some technological developments in the utilization of waste liquors, in wood chemistry (cellulose chemistry), and the introduction of coal-burning boilers.¹⁰⁹ There has been some expansion in employment, though more in regularity of work than in men employed in the mills, and an improvement in wages. Other effects have been simplification of standards and designs,¹¹⁰ which have broken down product differentiation and have further shaken market connections, and experimentation with other wood uses, about which we shall later have more to say. We might here note that the experimentation and the wartime stimulus to reconsider past policies and to look ahead to future problems has led the forestry profession to a most healthy stocktaking, to criticism of past methods of wood management, to a consideration of the place of the forest in our future industrial and social life and to a good deal of positive thinking on the subject of future forest policy.¹¹¹ There has been no capital expansion - indeed no adequate capital maintenance - in the Maritimes.

¹⁰⁶ From records of conversations with members of the industry. See also, G.G. Archibald, *Pulp and Paper During 1941 - The Pulp and Paper Magazine of Canada*, Vol. 43, No. 1, January 1942.

¹⁰⁷ From records of conversation with a member of the industry. See also R.H. Coats, *op. cit.*, p. 7.

¹⁰⁸ G.G. Archibald, *op. cit.*

¹⁰⁹ G.G. Archibald, *op. cit.*, and *Pulp and Paper Magazine*, *Technical Development of the Industry*, Vol. 43, No. 8, July 1942.

¹¹⁰ G.G. Archibald, *loc. cit.*

¹¹¹ There is much evidence of this. A typical example, which seems to reflect the views of many of the more conservative foresters is the Report of the sub-Committee of the Board of Directors of the Canadian Forestry Association called "A Postwar Plan for Canadian Forestry". *Pulp and Paper Magazine of Canada*, Vol. 43, No. 6, May 1942. This committee recommends regional planning, expansion of wood derivatives and cellulose manufactures, planning of forests for soil conservation, natural attractions, waterpower, etc.

More radical foresters think the crucial problem is proper management of the annual cut. See, for example, S.O. Heiberg, "Cutting Based on Economic Increment", *Pulp and Paper Magazine*, Vol. 43, No. 10, Oct. 1942.

Now traditionally, as we have seen, newsprint is the mainstay of the Maritime industry. Of the twelve Maritime mills, three manufacture newsprint, and seven, smaller mills, manufacture groundwood pulp for newsprint. Only one mill manufactures kraft products and only three mills manufacture sulphite pulp and/or its paper products. Thus the technical changes in the industry that affect the sulphite process and cellulose products are of comparatively small permanent significance, directly, to the Maritimes. They might, however, be important indirectly, in the manner of their effect on regional competitors; they might lower production costs, attract more enterprise to sulphite, thus strengthening the Maritime newsprint producers while adversely affecting the Maritime sulphite producers. They might do this, but they probably will not. Let us consider the evidence so as to dispose of this much talked of point before turning to the vital considerations of postwar markets for newsprint and supplies of pulpwood, the really crucial things for the Maritimes.

It is, one must realise, next to impossible to learn about the research programme and results of wood chemistry research during war, so much of it is of military importance. This much may be inferred - and it is confirmed by authoritative professional persons - that the research is for wartime uses and that little of it produces directly anything of peacetime use or value. But some of the processes discovered may be adaptable to peacetime uses. Of this there is no doubt. We may confidently expect a greater use of wood pulp after the war for rayon and other cellulose products; but this will probably not affect 5% of our pulpwood cut.¹¹² Less confidently we may expect the use of sulphite liquors for plastics and the direct use of wood, by chemical processes, for plastic materials. It is not known as yet how economical either of these processes will be. The first is being experimented with in Wisconsin, the second in Germany. Even if economical the first process would affect only a small percentage of the Canadian industry, the second process would mean new plants, which the Maritimes could hope to get only if there is promise of an adequate wood supply, a problem we have seen requiring attention now for the existing pulp and paper industry.

But what about fuels and rubber, in a word, the production from sulphite liquor of methyl alcohol and its derivatives? That this will be attempted in Canada, as it has been in Sweden, is now certain, and the author of the attempt has defended his judgment in an ably argued but controversial article in the Pulp and Paper Magazine.¹¹³ In the sulphite process a great amount of the tree

¹¹². Estimate of 5% made by an authoritative professional forester and chemist.

¹¹³ M. Rosten, Pulp and Paper Magazine, Vol. 42, (1941).

as well as the liquor used in treatment is poured out as waste and, unlike the sulphate process, there has been, in Canada, no process developed for recovery of the valuable elements this waste liquor contains. Its chemical constituents are well enough known, but methods of recovery are not regarded as economic. The waste liquor, however, is corrosive and, because of its evil effects on vegetation and to prevent the pollution of streams, the Swedish government has forbidden its disposal by dumping or by sewage. Consequently Swedish sulphite mills have had to develop methods of treating it.

The liquor contains by volume about 2.5% sugar and there are two techniques, the "fixed yeast" and the "bottom yeast", for recovery and fermentation of the sugar. There is, of course, no doubt about the feasibility of the process, the doubts are about its economic practicability. The selling price of alcohol in Canada today, Mr. Rosten points out, is 75¢ the gallon. There is great demand for alcohol today since the new catalytic process of transforming it into its derivatives and their combinations, acetone, acetic acid, ethyl acetate, fuel oils, etc. Most important is the demand for alcohol for synthetic rubber. Mr. Rosten argues that for fuel alone, for introducing a 10% infusion of alcohol into gasoline, 90,000,000 gallons of alcohol would be required, a quantity which at present known rates of recovery would require several times the present annual output, 1,400,000 tons, of sulphite pulp in Canada. In addition there are the great possibilities of synthetic rubber demand and of demand for the other alcohol derivatives. Even if it costs more to make alcohol from sulphite liquor than from molasses the demand is such that ruling prices will cover, Mr. Rosten argues, the costs of utilizing sulphite liquors. No doubt the molasses process would yield higher rents. Mr. Rosten estimates the probable cost of alcohol from sulphite liquor - in Canada - at 20¢ the gallon, with the possibility that this might be reduced by selling 5-10% of the yeast produced.

Now it is probable that Mr. Rosten underestimates Canadian costs.¹¹⁴ Even if the new Canadian industry was as efficient as the most efficient Swedish plant, costs in Canada would run to 28¢ a gallon, and it is probable they would be nearer 40¢. This compares with a peacetime average cost of alcohol from molasses of 23.6¢, a selling price of around 28¢.¹¹⁵ In wartime the increased demand, the shortage of natural rubber, of molasses, of ships, have

¹¹⁴ F.S. Hanson, in the Paper Trade Journal, issue of Dec. 10, 1942, shows that the cheapest cost in Sweden is 18¢ the gallon, the typical, 22.7¢ the gallon. Converted to American cost conditions the Swedish costs work out to a range of 27.7¢ to 37.1¢. Even the lowest figure is 7.7¢ higher than Mr. Rosten's estimate.

¹¹⁵ F.S. Hanson, loc. cit. These are American prices.

all combined to create a most artificial price. In 1942, in the United States, the price had risen to 50¢ a gallon,¹¹⁶ and was still rising. In Canada it has run as high as 75¢.¹¹⁷ It is clear, therefore, that, even if Mr. Rosten's costs are optimistically estimated, that his whole case rests on our estimation of future demand. If natural rubber returns, after the war, if the demand for alcohol and alcohol derivatives goes back to its prewar level, there is little likelihood of the recovery of alcohol from sulphite liquor being economically practicable. If, however, peacetime demand remains high the sulphite process may be possible. There will be strong pressure, for some time to come, to retain a synthetic rubber industry. This pressure will come partly from those who see strategic advantage in maintaining some rubber production independent of foreign sources of supply, and partly from those who have heavy investments in synthetic rubber. On the whole, though, there seems to be an inclination to believe that the rubber companies will return, in the main, to natural rubber.

For gasoline the method of introducing alcohol from sulphite liquor into petroleum products seems to put the cart before the horse. At present it is cheaper to make alcohol from petroleum than from sulphite liquors. The most modern methods of making high octane gasoline run counter to Mr. Rosten's method.¹¹⁸

One of the great restrictions on a large use of alcohol is the restriction introduced by government. Duties and taxes, imposed to limit the consumption of alcohol as a beverage, have raised the price to the consumer by several thousand per cent.¹¹⁹ No doubt there would be a great expansion in the industrial and therapeutical use of alcohol could it be obtained by users at even 50¢ a gallon. There seems no reason, except the fear of illicit resale for beverage purposes, why this tremendous discouragement should be put upon the chemical industries and alcohol producers. It should not be impossible, or even very difficult, to provide reasonable safeguards against illicit resale. Granted such conditions we might see a high demand for alcohol in the post war years. If so, there would appear to be some reason to believe in the future of alcohol recovery from sulphite liquor. If not, this optimism may well be misplaced. The economist can hardly judge finally in such a matter. The weight of expert opinion seems to be strongly against Mr.

¹¹⁶ F.S. Hansen, loc. cit.

¹¹⁷ M. Rosten, op. cit.

¹¹⁸ From minutes of a conversation with an industrial research chemist.

¹¹⁹ Even hospitals and industrial users, after receiving a rebate of customs duties, pay from 400% to 800% over the actual production cost.

Rosten's thesis, and the laymen can do little but accept this opinion, remembering to allow for the historic fact that innovators have always faced similar unfavourable judgment from their contemporaries.

Even if the experiment which is now to be tried works out favourably it will have little direct effect and probably no great indirect effects on the Maritime industry. Two sulphite mills would benefit, might even expand their scale of operations. A shift to the sulphite process, elsewhere in Canada and the United States, might improve the newsprint market, but that is all highly problematic, and the ability of Maritime mills to profit by it will be limited by their supply of accessible, merchantable timber.

Let us ask then what the direct effects of the war on the markets for and supplies of newsprint have been, for this, we repeat, is from the Maritime point of view the crucial question.

In the main the war has tended to shut us off from European markets and to shut the American market off from European sources of supply. Because, in any case, the Maritimes have chiefly sold in the United States, and to a lesser extent in Britain, the only European market still accessible for small shipments, limited by shortage of shipping, there has been little direct change of markets. Perhaps the standardization of designs and weights may have broken down product differentiation, so that firms' average revenue curves will be more elastic, consumers, that is, will be more liable to consider price only when they buy. If that is so, and it may be, we have to ask about postwar competitors from other regions. As we have seen the Maritimes have nothing immediately to fear from other established North American sources of supply. Only the Pacific Coast can manufacture newsprint cheaper, and it has its own market. Professor Guthrie does not think highly of chances of the South competing successfully on the basis of its stands of southern pine.¹²⁰ The main price competition will come then from European suppliers. Our knowledge of what has happened to the European industry is scanty. We know that in German occupied Europe, as in Germany itself, there has been very heavy cutting, not only for pulpwood, but for the great variety of ersatz products the Germans have, of necessity, based on wood. European forests, in ordinary times, are treated, not as a mine to be exploited, but as a crop, the annual increment only may be cut. There is reason to believe that the Germans have greatly exceeded this increment.¹²¹ It is possible,

¹²⁰ J.A. Guthrie, op. cit., pp. 21-2.

¹²¹ Mr. Coats speaks of "ruthless over-cutting" in occupied Europe. R.H. Coats, op. cit., p. 7. But we do not know how serious this has been.

but not certain, that all of enemy occupied Europe, for five to ten years, will have to suspend or greatly reduce logging in order to reestablish the forests. In any case there is reason to believe that, for some considerable time, these countries will be much heavier buyers than before the war. It is unlikely that we shall sell to them, except, perhaps, in small quantities to France, Belgium and Holland. What is important is the extent to which they will siphon off the Scandinavian and Baltic supply. Though the Germans have forced some deliveries from Sweden, it is expected that after the war there will be heavy Baltic and Scandinavian surpluses put on the market at prices considerably below Canadian costs.¹²² For a considerable period it is probable that the Scandinavian supply will not appear in the American market. It may, very early, begin to compete in the British market. A good deal will depend on the new channels of world exchange. If Scandinavia buys from central Europe and Britain and we do not, they will sell there. If they are not able to buy from the United States, they may not sell there.

Our industry believes that eventually it will have to face heavy Scandinavian competition at low prices in the United States market. But this pessimism seems unwarranted to us. It will probably be some years before European forests are competing. During this period Europe will take the Scandinavian supply, leaving little surplus to compete in America. In that interval we should be strongly entrenched again in the American market, more strongly than ever. Indeed, it would be a fair guess that for some years at least the American market could absorb an increased Canadian output.

But the problem of increasing Canadian supply, more particularly the problem of increasing Maritime output and of augmenting Maritime productive capacity, is limited by the accessible stands. Unless there is a change in our methods we have to look for a reduction in cut, or a great increase in the cost of cutting, in the very near future. Even before the war, as we saw, the problem of proper cut rotation and of accessible stands was becoming urgent. Wartime cutting, as we have seen, has been of the sort, perhaps of necessity, that has rendered this problem acute. It is not the purpose of this Report to make recommendations of policy, but the implications here seem so evident, so "open and palpable",

¹²² It is a favourite hypothesis in the Canadian industry that Swedish pulp and newsprint can be landed at New York \$10.00 or so the ton under the Canadian price, because of the high cost of Canadian labour. Economists will look with some scepticism on this argument. American labour is the highest paid in the world, yet American industry can undersell manufacturing competitors, in most lines, in most world markets.

as the Prince told Falstaff, as cannot be disregarded. For soil conservation, for the maintenance of streams and rivers, for the natural attractions of forest and game country as well as for the sustenance of the most important and healthiest industry in New Brunswick, and the well-being of the people dependent directly or indirectly on that industry, a proper policy of forest management is urgently required. That policy requires to be a combination of programmes of action, one for the woodlot-farmer, one for forest roads, one for protection against insect and fire, one for securing proper cutting methods and others for such special purposes as soil conservation, game protection and so forth. We do not want an industry based on a wasting asset, exploiting it, then moving away. This temporary, feverish unstable type of industrial structure has been too characteristic of Canadian development. It is wasteful, it leaves ghost communities, starving and depressed, it treats men and their communities as means, not as ends. Economically it is wasteful, philosophically it is evil, socially it makes for instability, destroys the roots, the security, the sense of permanency and of community on which solid civilized values may be achieved.

Chapter 5

HEAVY INDUSTRY - COAL, IRON AND STEEL

Section 1. Introduction.

Of the industries in which the Maritimes enjoy particular advantages, the iron industry, embracing basic coal and iron ore mining, heavy pig iron and steel ingot production, and steel fabrication, is the most important single industrial group in Nova Scotia and ranks with agriculture and forestry as one of the three key industries of the Maritime region. The Dominion Steel and Coal Corporation in 1939 had \$22,000,000 invested in the primary iron and steel industry, and \$50,000,000 in the coal industry. In the direct employ of this company and its subsidiaries were about 17,000 workers. In salaries and wages it paid out annually about \$20,000,000, over 10% of the total income received in Nova Scotia. Its gross products, exclusive of secondary steel and shipbuilding were valued at \$40,000,000.¹ It has been reckoned that one quarter of the gainfully employed in Nova Scotia are directly or indirectly dependent on this Corporation.² Its wellbeing is essential to the prosperity of the people of the province. The industry - its products essential to war - is naturally affected by war in an extreme degree, so much so, indeed, that any historical analysis of the industry, similar to the brief study we have made, for example, of the forest industries, would be, in the main part, an account of the fluctuations in war and peace; its more recent history would show how all its later problems have grown from its extraordinary conditions during the last war and the last post-war depression. Yet we have attempted no such study. Although there is a large literature on various aspects of the industry there is no single study of coal, iron and steel in Nova Scotia as an integrated group, and no recent study of any of

¹ Figures based on Dominion Bureau of Statistics Annuals - Iron and Steel in Canada, Coal Statistics for Canada, and on information supplied by the Corporation.

² C. Gillis, Esq., in House of Commons Debates, June 4, 1940.

the constituent industries of this group.³ We ourselves have had to be satisfied with a rather superficial account of the industry from the point of view of its functional integration and of the more apparent wartime effects. Consequently this chapter follows a somewhat different development from our other chapters on separate industrial groups. Concerned chiefly with wartime effects we have not included any thorough-going analysis of the pre-war position of the industry, and have not been able, in consequence, to assess with any confidence the significance of the wartime changes.

The industry, as we have said, is an integrated one. This means more than the obvious fact of integration of ownership. It is, of course, true that the group of interrelated companies known as Dosco - the Dominion Steel and Coal Corporation - own the Wabana ore mines, the Sydney and Acadia coal fields, the basic steel plant at Sydney, the heavy steel plants of the Nova Scotia Steel Company at New Glasgow and Trenton, the Halifax Shipyards, steel wire plants, a railway, a fleet of vessels and street railways and electrical distribution companies in Cape Breton. It means also that the manufacture of steel wire, the building of bridges, ships and railway cars, draw their main raw material from the steel mills, and the steel mills in turn draw their raw material from the coal and iron ore mines. Thus on the supply side the cost of making wire or fish-plate or railway cars will be a direct function of the cost of mining

³ That it would have been proper to our purpose to have attempted such a study we must immediately admit. The difficulty was that the whole subject is so complicated, involving as it does such ambiguous congeries of relationships as the financial organization of the companies, their market relations with their competitors, the history and present relations of the unions and management and the internal struggles within the unions, the relations of both labour and management with government and with the consuming public, and even darker and more controversial problems, that no brief study of it was possible. We should have had to undertake a study, to avoid partiality and shallowness, as lengthy and as difficult as our study of war effects on the total economy. Thus there was, for us, the familiar problem of allocation of resources. We could only do so much with the time and resources at our disposal. We were asked to study the effects of the war on the total economy. No full study of the heavy industries was, in consequence, possible. A partial study would have been superficial and misleading. Hence we have made no attempt - and make no claim - to analyze this industrial group. We have been content to discover the more obvious effects of the war, as they now appear, to underline some of the problems these effects raise, or - the problems being chronic - render more acute, and to express the hope that some other agency will, perhaps under this instigation, undertake a full analysis of the problems of this industry.

Wabana ore and Sydney coal. On the demand side it means that the profitability of the ore fields or the coal deposits will depend on the demand for steel products, and on the elasticity of the industry to shift, with shifts in demand, from one sort of steel fabrication to another. We propose in this chapter to examine the war effects in the light of this known functional integration of the industry, to consider first the effects of the war on the supply of basic materials and on the costs of their fabrication through the various stages of production, then, reversing the order as is logical, on the demand for various fabricated products and eventually on the derived demand for the basic materials.

Section 2. Supply.

A. Ore and Coal.

It is from the Wabana ore fields and the Nova Scotian coal deposits that the particular advantages of Nova Scotia in this industry now derive, but the iron industry of Nova Scotia was based originally on iron ore deposits of Pictou county and the coal of Pictou and Cumberland.⁴ It was on the conjunction of these ore beds and coal seams that the Nova Scotia Steel Company had its beginnings. Unfortunately most Nova Scotia ores are expensive to mine⁵ and of inferior quality,⁶ and the industry could never have developed to its present size and importance but for the discovery of the Wabana deposits of hematite on Bell Island, Newfoundland.⁷ The Wabana Mine, owned and operated by the Dominion Steel Corporation, covers an area of 240 acres in its upper bed, with a thickness from the surface of six feet.⁸ This upper bed is remarkable in that it can be mined without excavating.⁹ The surface cover of rock can be stripped by steam shovel, the hematite loosened by drill and taken out. Newfoundland labour accepts wages that run well below the general level of North American labour, and, in any case, for such work, nothing like as high a proportion of high paid skilled men need be used as for the usual mining operation. It is small wonder that in

⁴ J.E. Woodman, *The Iron Ores of Nova Scotia*, p.175-206. There are other ores in Nova Scotia, particularly in Annapolis county, but the Pictou ores - limonite and hematite - seem to have been the only ones of any real economic importance in the development of the industry.

⁵ W.J.A. Donald, *The Canadian Iron and Steel Industry*, Boston (1915) p. 27.

⁶ Except for the comparatively small outcroppings in the Cobequid mountains the ores are high in phosphorous and silicates. Cf. Woodman, *op. cit.*, p. 146-170, p. 216.

⁷ Donald, *op. cit.*, p. 201.

⁸ Donald, *op. cit.*, p. 29.

⁹ From minutes of interview with a company metallurgist.

the origin of the Dominion Iron and Steel Company in 1898 the Whitney interests expected to bring Wabana ore to Sydney, landed at \$1.25 per ton as compared with prices ranging from \$2.50 to \$3.25 per ton, depending on quality, at the furnaces at Pittsburg.¹⁰ There is no question of exhaustion of the Wabana fields in the foreseeable future. Below the upper level is a lower seam, stretching out under the sea, of uncalculated area, so the physical reserves are adequate to sustain operations for any period in which we may be interested. The lower level seam may never, however, be extensively worked for it will be much more costly to mine, particularly in its submarine reaches, and the ore is not of sufficiently good quality to justify high mining costs. It has phosphorous that, together with the sulphuric content of Sydney coal, has given the industry some difficult metallurgical problems to solve.¹¹ Another basic material is limestone for flux which is found in good quality and sufficient quantity in Nova Scotia and can be shipped by water, around the province, or by rail to Cape Breton.

The third basic ingredient is coal. This is found in various parts of eastern Nova Scotia, particularly in Cape Breton (the Sydney field), in Pictou and Cumberland counties (the Acadia field and the old Nova Scotia company's mines) and in Inverness. Of these the Sydney field is the most important. Its output accounts for about two-thirds the annual Nova Scotian production;¹² it is most intimately connected with the steel industry, and, from the point of view of continued operations it is most important for some of the mainland seams are either close to exhaustion or no longer ordinarily profitable to operate.¹³ The reserves of the Sydney field may run to as much as 3,500,000,000 to 5,000,000,000 tons,¹⁴ but in as much

10 Donald, *op. cit.*, p. 201.

11 From minutes of an interview with a metallurgist of the company.

Cf. Donald, *op. cit.*, p. 29.

12 Dominion Bureau of Statistics Annual - Coal Statistics for Canada, 1939 (and previous years). The daily rated capacity of the Nova Scotia mines is as follows:

Joggins - Spring Hill	2400 tons
Pictou County (Acadia)	4700 "
Total Mainland.....	7100 "
Sydney	20000 "

T.L. McCall, Some Coal Mining Practices of the Dominion Steel and Coal Corporation. Proceedings of the Annual General Meeting, Ottawa, March 1936. Pb. in transactions of the Canadian Institute of Mining and Metallurgy, Vol. 39, 1936, p. 461.

13 In peacetime, that is. See Report of the Board (under I.D.I. Act) in the dispute between the Acadia Coal Company and its employees, Labour Gazette, Aug. 1940, p. 769-70.

14 The seams are roughly elliptical in shape and from half to two-thirds of the seams run out under the sea (C. Gerow, "The Mining and Marketing of Nova Scotia Coal", the Dominion Coal Co., 1937, p. 6). The subterranean deposits occur in thinner veins and about half have been lost by natural erosion (F. W. Gray, Mining Coal under the Sea in Nova Scotia, Annual Meeting, M.S.N.S., 1927).

as the working seams stretch out beneath the sea, the total physical reserves are scarcely significant. What we require is rather an estimate of the workable reserves under foreseeable economic conditions. Dr. F. W. Gray and Dr. R. Heath Gray estimate¹⁵ that to date about 200,000,000 tons of coal have been taken from the Sydney coalfields with an average recovery of about 60% of the coal in the seam. They believe that this percentage can be maintained and that it guarantees successful marketability, other things unchanged. In estimating the probable reserves which yet may be profitably worked, they have had to allow for the distance of the coalface from the pithead, the cost of ventilation and the maximum safe depth of the stratacover for submarine operations. There is also the cost of hauling from the face to the pithead. As they point out, these considerations are economic, rather than technical; the men can be taken to the face, ventilation can be provided, the mines can be made safe and kept safe, and powered haulage can be provided, all to an indefinite depth and length. The limiting factor is cost. If the eight hour day is accepted as standard, every extension of the time of travel underground means a diminution of the time that can be worked at the coal face. The Doctors Gray¹⁶ calculate that the limit of submarine extension imposed by the time of travel underground is six and a half miles off shore. Similarly, the engineering problems involved in providing ventilation and proper depth to the stratacover can be solved, but each extension of the galleries adds to the cost of taking the coal. The Doctors Gray¹⁷ put the ventilation limit for the present at eight miles, and the limit of stratacover at 4,000 feet, a depth limit which will be encountered within the travel limit of six and a half miles. Primary haulage is good for only three miles, and after that secondary haulage is adequate for another three or four miles. Further haulage facilities would increase the per ton cost of coal mined, and might be regarded as being at present economically impossible. Thus, though the coal seams give reserves of possibly four or five billion long tons, it is not reasonable to think of these reserves as being within economic range. The Doctors Gray¹⁸ estimate the probable reserve of the Sydney coal field within economic range at 1,600,000,000 tons, which at 60% recovery would give a net yield of approximately 1,000,000,000 tons of coal. If the coal were taken out at the present maximum rate of 5,000,000 tons annually, that would give a probable life of two hundred years. Thus we see that the continuation of mining operations in the Sydney coalfields is not apt to be limited in

¹⁵ In the transactions of the Mining and Metallurgical Institute, Vol. 44 (1941), pp. 289-300.

¹⁶ F. W. and R. Heath Gray, *op. cit.*

¹⁷ *Ibid.*

¹⁸ *Ibid.*

any foreseeable period by physical factors, such as shortage of reserves or the engineering difficulties of submarine working. But we should notice that these calculations rest on the assumption that economic conditions will remain unchanged. An alteration in the price of coal or in other costs of operation might seriously affect either the life of the mine or the profitable rate of exploitation. Thus if the market price fell by even a small amount, or if other costs per ton rose, the cost of extending the galleries might be prohibitive, and since new seams could not be opened up, the gradual exhaustion of the old mines, which is of course a continuous process, would not be offset by the opening of new ones, and thus coalmining operations in the Sydney area might gradually come to a halt. Consequently, the important considerations with respect to Cape Breton coalmining are those which govern the Company's ability to put its coal on the market at a competitive price.

Though the situation in the mainland mines is distinctly different from Cape Breton, very similar conclusions may be reached. Some of the mainland mines are much nearer exhaustion,¹⁹ and others have engineering problems of great difficulty,²⁰ so that the economic problem is complicated for them by gradually rising prices of operation.

Coalmining is peculiarly subject to the law of diminishing returns. It is based on a wasting asset. Unlike good forestry and good agriculture, the "annual take" is not a recurring increment, but a net diminution of the capital asset, and the deeper and further one goes into this asset the costlier, techniques remaining the same, it is to take it out. Yet it is possible to offset the effect of this physical law, or indefinitely to postpone

¹⁹ McCall, op. cit., p. 486.

²⁰ In the Cumberland Company mines, for example, there is the serious menace of "bumping". McCall, op. cit., p. 482. A bump is a sudden breaking of the strata of the mine resulting from settling or upheaval. It has the effect of an earth tremor, and is both dangerous and costly. As a consequence of these bumps the room and pillar system at Springhill had to be abandoned in favour of long wall retreating, and this was interrupted first by flooding in No. 3 seam, later, when the retreat began to enter a bed of sandstone overlying the shale, by a bad bump which wrecked the east level, as the flooding had wrecked the west. The Springhill mines, in consequence have never recovered the output of which they were capable in the room-and-pillar period, and the reduced output is more costly to produce.

the appearance of the effects in the form of rising average costs, by improvements in the techniques of extraction. This technological improvement has been so great in most mining and metallurgy that, over the period so far elapsed of this century, operations have generally been conducted at constant, or even decreasing costs.²¹ To some extent this has been true in Nova Scotia coal mining. In spite of the big change in the value of the dollar, and in spite of important increases in the rate of wages the average value of coal raised in 1914 was but 16 2/3% less than in 1939,²² which means an actual improvement in tonnage per man. It is the opinion of the company metallurgists,²³ however, that increasing costs can be further averted only by greater mechanization and other technological improvements which, because they fear they would lead to unemployment, the workers oppose. The company officials point out that in spite of steady mechanization and the closing of worked-out mines, the opening of new shafts and the increased surface work has kept employment steady over the past thirty years,²⁴ and that there is no reason why further mechanization should increase unemployment. This issue, between workers and management, is one to which we shall later refer. It is fairly clear, however, that, though there has been no significant increase in the cost of taking coal from the Nova Scotia mines, the industry has reached the stage where such an increase is likely unless there is increased mechanization, and we mean to show that increases in cost now would make it difficult for the industry to maintain its present level of operation.

There is some discrepancy in the cost figures for taking Nova Scotia coal. The Dominion Bureau of Statistics figures for 1939 show an average cost, labour and fuel, for Cape Breton, of \$2.43, and for Pictou of \$3.08 per ton.²⁵ The Company submitted its Pictou costs to be in excess of \$4.44 per ton,²⁶ and claimed no profit was earned on a price of \$4.13 per ton (1939 figures) for Cape Breton Coal. When, however, one considers capital and marketing

²¹ See my "Essentials of Price Theory", Toronto, 1942, p.146, for an analytical treatment and documentation of this point.

²² Calculated from Dominion Bureau of Statistics Annuals - Coal Statistics for Canada.

²³ As privately stated in conversation.

²⁴ Actually there has been a very slight decrease, from 13,664 in 1913 to 13,035 in 1939. D.B.S. Annual, Coal Statistics for Canada, various years.

²⁵ Coal Statistics for Canada, 1939, p. 28

²⁶ Report of the Board in the Dispute between the Acadia Coal Company and its Employees.

costs, these discrepancies may be explained.²⁷ What is difficult to understand is how, if the discrepancy is attributed to capital cost,²⁸ the company has been unable to earn on invested capital. It would seem that a thorough and independent study of the costs of operation of Nova Scotia mines should be made by someone empowered to examine with company and union accountants the cost records of the operating companies. Clearly so much at issue between the company and the workers depends on this question of costs. Can the company continue to maintain the rate of operation and employment without further mechanization? Can it afford higher wages to its workpeople? In our state of knowledge we cannot give the answer to these questions. We can only say that as early as 1925 the issue was clearly seen by the Royal Commission which, in its Report, took the line that, though the Company proposed an unnecessarily heavy wage cut (35%), operations could not be conducted at the then existing wage level, and that the Company was sincere and honest in its argument that the coal operations, even considered by themselves, were unprofitable.²⁹ It is possible that at that time charges for

27 For all Nova Scotia mines in 1941 the Canadian Mining and Metallurgical Bulletin (No. 365, Sept. 1942, p. 416) gives total operating costs as \$4.683 per ton, of which \$2.613 was represented by cost of labour and \$0.24 by power. Of other costs distribution, at \$0.528 and stores at \$0.548 were most important. Rents and royalties took \$0.13 per ton and bond and general interest only \$0.046 per ton. Value received per net ton sold was \$4.445, per ton revenues were \$4.443, yielding a loss on all Nova Scotia operations of \$0.25 per ton, even in a war year.

28 Which, if the figures reported to the Mining and Metallurgical Bulletin are reliable, it cannot be.

29 "By retaining their increased wages when the cost of living fell, the men hoped to enjoy a better standard of life. Whether profitable business would continue to be available at these wage rates, what constituted profitable business, and whether a change in the situation could be met in any other way than by a reduction of wages were all issues on which they wanted closer argument and fuller information... The operators explained to us the facts and business considerations, as well as the market and other forecasts, on which they figured in formulating their demand. On a consideration of the statement they submitted to the Union, we cannot take the view that they were either indifferent or arbitrary in presenting their proposal... but we believe the wage cut they proposed was unreasonably high... Throughout these years the belief has persisted in the men's minds... an honest and sincere belief... that if the coal operations were regarded by themselves they would prove to be profitable, that is to say if they were credited with a fair transfer price for the coal supplied to other constituents of the Corporation, if they were charged fair prices for the services rendered to them by other constituents, and if their funds were not burdened by responsibility for other interests than the economic development and operation of the pits". Report of the Royal Commission on the Coal Mining Industry, 1925, pp. 19-21.

services rendered the mines by other constituents of the parent company, as for example marketing services, were high, as the men alleged; possible, too, that the company was over-staffed and that salary charges were too high,³⁰ and it is certain that the events of 1922 had left the men bitter and distrustful, so that they put little faith in the company's submission and figures;³¹ certain, too, that the operators were not justified in insisting on a reduction of wages in 1922,³² or the reduction they asked for in 1925, but there was no clear evidence that, allowing for all this, the mines, taken by themselves were profitable, or could be profitable at a rate of wages comparable to American rates. The same issue appears today. The men believe still that the coal mines are being milked to make other operations of the company profitable, that the failure of the mines to show a profit is a contrived failure, that wages are too low, living conditions bad and that they should be improved. The company continues to assert that the price paid for coal by constituent companies are fair prices³³ and that its charges for services are fair and reasonable.³⁴ On these points the Board in the Acadia dispute supported in its findings the contentions of the Company.³⁵ On the basis of these submissions the company claims to operate the Pictou mines at a loss and the Sydney mines at no margin of profit over a period of years. Yet the position of the men is not unreasonable. The history of labour-employee relationships in Cape Breton and eastern Nova Scotia is a long and unhappy one. In their time the men have been subjected to the truck system, to labour spies, to anti-union violence, and to most wretched and miserable living conditions.³⁶ Moreover, there are no alternative occupations for the people, outside the heavy industries, in Cape Breton. Farming is a mean struggle for existence on a barren soil. Fishing yields a bare livelihood and is requiring fewer rather than more men. Yet the natural increase in Cape Breton for the decennial period 1926-1936 was 42 per thousand, of which migration took less than half.³⁷ Clearly the pressure of population on the receding resources has been becoming acute, and the men have the belief, as one who speaks for them has said,³⁸ that no responsibility for their condition or for

30 See E. Forsey, *Economic and Social Aspects of the Nova Scotia Coal Industry*, McGill University Economic Studies, 1926. p. 99.

31 Report of Royal Commission, *loc. cit.*

32 *Ibid.*, p. 31

33 Report of the Board in the Dispute between the Acadia Coal Company and Its Employees.

34 *Ibid.*

35 *Ibid.*

36 E. Forsey, *op. cit.*, pp. 74, 88-95.

37 Cf. M. C. MacLean, *Population Movements in Cape Breton*, Public Affairs, August, 1938.

38 See speech by C. Gillis, Esq., House of Commons Debates, June 4, 1940.

their future has been assumed either by the Company or the Government. We appear to have the case of an industry on the very margin of production, maintained, indeed, in part by an indirect subsidy of the Dominion Government,³⁹ and on which an entire community depends singly for its livelihood. The Province of Nova Scotia, which owns the resource, has definite and clear responsibility for these coal-mining communities. It may be said there is no single solution for their problem, we cannot say. It may be that the mines will have to operate on a reduced level, as to that we can guess better when we have examined the question of selling the coal, and that alternative industries should be established in and near these towns, or that some people will have to be helped to transfer to other places. To know about this a full and careful study would be necessary. Too little is known. Certainly it is not enough to condemn the miners for truculence and irresponsibility. District 26 of the U.M.W. may have its internal difficulties. Of that there can be little doubt, but the very problems of the Union, the miners' hostility, intransigence and hotheadedness are all themselves evidence that here we have a depressed and suffering community, oppressed by the spectre of its future, the inheritance of its unhappy past and its belief that no care or plan is given to its problems.

The war has had strangely little effect on the actual supply of coal, though, as we shall see, it has had important effects on the market distribution of the coal. In 1940 production was up to little short of 7,000,000 tons, but in 1941, it declined to about 1939 level because of the slowdown strike, and in 1942 it remained low, at about the same level because of the lack of shipping. Costs of actual operation increased but little, though shipping charges were higher. The price and wage ceilings prevented any spectacular rise in values. The war seems primarily to have thrown into an acute stage the problem of labour-management relations, always endemic, which we do not propose to discuss further at this stage.

B. Supply - Steel Fabrication

Steel costs depend on the cost of the materials and the cost of fabrication. The Nova Scotia industry would appear to be well situated with respect to the first cost element and with respect to the second it has been said of the early days of the industry that "the success of the Nova Scotia Steel and Coal Company is a byword in Canadian finance the use of labour saving devices and modern machinery, as well as the rounding out of the plant, has so reduced costs, as to place the company on a very favourable competitive basis".⁴⁰ Unfortunately these fair promises have been

³⁹ We shall discuss this later in connection with marketing.

⁴⁰ Donald, op. cit., p. 199

disappointed. The ore is cheap to mine and transport as is the line for flux. But the coal, though on the spot, is not cheap to mine. American bituminous coal for coking can, it is alleged,⁴¹ be landed at Sydney for the same price as Cape Breton coal, and coal costs at competitors' plants are less. Moreover the metallurgical costs in fabrication are high because of the quality both of ore and coal. In the early days, too, there appears to have been unnecessarily high costs of management⁴² at Sydney, and, though these have been reduced along with capital costs since the reorganization of the corporation, the great economies of the Nova Scotia Steel and Coal company do not appear to have been recaptured.

The comparison of the Nova Scotia industry with that of Ontario based on Census of Industry returns is not very revealing,⁴³ because of the paucity of establishments and because also of certain inconsistencies as between establishments in the method of making returns. We are unable in this instance to quote the basic statistical data because only two establishments are involved.⁴⁴ We may, however, briefly summarize the conclusions to which the study of the Census of Industry returns led us, emphasizing however, that they are not direct cost studies, that they are, from the nature of the material, tentative and that inferences as to relative costs ought not to be drawn from them.

Wages and employment are some indication of the growth and prosperity of an industry and of its sensitivity to market and cycle movements. We found that, though there was practically no alteration in capacity - as measured by blast furnace capacity - in the industry between 1920 and 1940, there were wide fluctuations in employment. In 1920 the industry, both in Ontario and Nova Scotia was enormously expanded both in capacity and employment as a result of the stimulus of the last war. Employment fell off between 1920 and 1926 by about 33.1/3% in Nova Scotia and about 40% in Ontario. During the peacetime boom period employment increased again to about the 1920 level in both regions. There seems very little difference between the two regions in the extreme sensitivity to cycle movements and in the fall and rise of employment over this cycle period. But after 1930 a difference appears. In 1933 Nova Scotia employment was down to one-third of the 1930 peak, Ontario employment was down only to the 1926 level, i.e. to three-fifths the 1930 peak. In 1937 the Nova Scotia industry was just expanding employment beyond the 1930 peak. The new armament boom had brought Ontario employment up to 60% in excess of its previous (1930) peak. By 1940 the Ontario industry was

⁴¹ By a company metallurgist in conversation.

⁴² Donald, *op. cit.*, p. 205.

⁴³ The information of this paragraph is based on a study of returns made by the industry over a twenty-year period to the Dominion Bureau of Statistics and is published with the consent of the Bureau.

⁴⁴ It is contrary to the Dominion Statistics Act to publish Census of Industry data for less than three establishments.

employing more than twice as many men as in 1930; the Nova Scotia industry was employing about 30% more than in 1930.

Wage figures show that the Nova Scotia industry held its own in the decade from 1920-30 in part by a wage advantage over its Ontario regional competitors. Whereas in 1920 the annual earnings in Nova Scotia were on the average about the same as in Ontario, during the depression they suffered greater reduction and in 1930 never recovered to the same degree as in Ontario. Indeed, not till the steel strike of 1943 was this differential adjusted.

A study, establishment by establishment, of the detail of production figures, revealed that, whereas in Nova Scotia there was no great change in the type of product produced, in Ontario there was a trend towards greater diversification of product, particularly in favour of ferro-alloys and drawn steel. This diversification had two apparent effects as revealed by the Census of Industry statistics. In the first place it appears to account, at least in part, for the greater stability of the Ontario industry over the period of the business cycle.⁴⁵ In the second place, because of the higher ratio of machine power to man power used in the new processes it has resulted in a noticeably higher net value productivity of labour. There has also been a tendency for the Ontario industry to develop some of these specialized plants as independent, comparatively smallscale enterprises. This devolution of the industry may be a further form of social protection in times of trade depression. It is also an indication of how an industry may develop when there are general location advantages. The Nova Scotia industry, lacking these general advantages, has been condemned to a different and more limited type of growth.

But in the primary iron and steel industry the development of specialized steel and alloy manufacturing has a comparatively minor effect on aggregate tonnage figures. The industry depends on the great establishments engaged in the production from the ore of pig iron, steel ingots, forgings and castings and rolled steel, and the conditions of efficiency in these establishments, of which there are only four in Canada, determine the ability of the industry to respond to war needs or to function efficiently in times of peace. We have not been able to make a study of comparative costs either in peace or war of the Canadian industry and its competitors. It is a fair inference from the tariff that Canadian steel, in general, is at some cost disadvantage when compared with either the British, American or German products, but this general inference must be qualified. The cost differential is apparently greatest in the cases of the specialized steels, tool steel, armour steel, tungsten steel, etc.,

⁴⁵ This is a very tentative conclusion. We have been unable to establish it by other evidence.

whereas certain Canadian products, structural steel, and steel wire, for example, appear to be able to compete on reasonably equal terms in foreign markets. As for inter-regional competition we have already shown our unwillingness to draw inferences from the only data in which implicit cost functions might be said to subsist, the Census of Industry returns, to which we have had access. If any inferences might be drawn they would suggest a very slight advantage, at the mill, for the Ontario producers, an advantage adequate to give them a definite edge in inter-regional competition as far east as the Ottawa valley. In the Quebec market it would be hard to show any great advantage either way. Thus in the basic product the particular location advantages seem fairly evenly balanced allowing for a division of the Canadian market and the maintenance of the industry on a large scale in the Maritimes.

C. Supply - Secondary Steel.

In the secondary steel industry the Census of Industry returns show even more markedly the trend towards diversification in the Ontario industry. Whereas the Maritime industry has continued to make cars, axles, rails, fishplate, wire and bars, the Ontario industry has developed a great variety of products including the motor car industry, machines and machine tools, cutting steels, light alloys and light alloy products, and so forth. Whereas in the Maritimes little growth in secondary steel manufactures occurred between 1920 and 1940, in Ontario, in spite of cyclical swings, there was a steady and marked growth, phenomenal, indeed, if, following the Bureau of Statistics classification, one includes the motor car industry among secondary steel products. This growth and diversification, resulting, no doubt, as much from the fact that the American automobile, machine tool and light steel industry had localized about Detroit and consequently found southwestern Ontario the most convenient neighbourhood for the development of Canadian subsidiaries, as from cheaper power and the larger domestic market in Ontario, has naturally given much greater strength to the Ontario steel industry than is possessed by its Maritime competitor. It is again the Ontario industry that has suffered less from cyclical phenomena, has been able to pay higher wages, has a higher average labour productivity, has been able to undertake more plant expansion and to maintain the most modern equipment and use more machine power per man. The basic steel producers have been consequently able to build up a steadier market, to form definite marketing connections, sometimes through ownership integration, with the subsidiary steel industry, and thus, on the whole, seems to enjoy definite advantages over the Nova Scotia industry in inter-regional competition in the Canadian market. This general conclusion should be qualified by allowing that the advantages apparently enjoyed by the Ontario industry in the light steel and automobile markets, do not necessarily extend to the structural steel market nor to the railway car and

equipment market. In the latter, indeed, the Nova Scotia industry may still enjoy a prominent place. But in terms of growth, development, stability during the cycle, ability to provide employment, the Ontario industry seems to have followed lines more promising for the future than the Maritime industry.

The war has led, naturally, to great expansion of the steel industry. This expansion, we shall have to remember, is common to all the warring nations. Because of the strategic importance of steel it is impossible to publish figures showing the exact extent of this expansion in Canada. We may be permitted to make a few comments upon it, however, and to give some notion of its extent in the Maritime provinces.

The expansion of the industry is measured in terms of plant capacity and employment. The expansion of blast furnace capacity in the Maritimes has been of the order of 25%, of total basic steel capacity, including a new rolling mill, perhaps 40%. In Ontario the degree of expansion has been greater. World output has probably expanded by considerably more than 40%.⁴⁶ The type of expansion is, however, probably more important than its aggregate amount. If British experience is any guide, and it is apt to be fairly representative of the warring nations, the expansion is less in basic steel capacity and output, and more in armour steels, ferro-alloys, etc. This has been in part true of the Maritime industry where much of the new capacity is for rolled steel.⁴⁷ It is in the secondary steel and steel using industries where the most marked expansion has taken place in the Maritime provinces.

The following table indicates the expansion of the Maritime

⁴⁶ This figure is based on an estimate made by an economist of the British Steel Control. It does not allow for bomb damage.

⁴⁷ The basic steel establishment at Sydney has had its capacity increased by the addition of one basic open hearth and two blast furnaces and by a new (reconditioned) rolling mill. New batteries of coking ovens are also being added.

industry.⁴⁸

We postpone an attempt to estimate the permanence and peacetime importance of these wartime changes until after a survey of markets furnishes us with some indication of where the Maritime industry might expect to sell.

⁴⁸ The data from which this table is contrived were obtained by private interviews with men in the industry and from personal visits to the plants. No violation of the Dominion Statistics Act is thus involved.

Wartime Expansion of Maritime Steel and Steelusing Industry
1938 - 1942

<u>Establishment</u>	<u>Increase in Capacity of plant</u>	<u>Nature of Increase</u>	<u>Increase in Employment</u>
Sydney - basic steel	25-40%	Open hearth and blast furnaces, rolling mill	3500 - 5400
Trenton - New Glasgow - Basic Steel and Eastern Car	100%	Shellfilling plant, machinery	1300 - 3300
Halifax Shipyards - marine repair, shipbuilding	50%	Machine shops, machinery, ships repair dock	375 - 2300
Pictou Foundry Machine - Foundation of Canada Ltd. Shipbuilding	?? Several hundred percent	Six temporary slips, machine shops	50 - 1600
Saint John Drydock Marine repair Shipbuilding	10% in 1942 more since	Machine shops, two slipways, small drydock	300 - 1300
Canada Car Aircraft Division Amherst	All new plant	Machine shops, Assembly sheds, power units.	- - 2800

One further wartime effect has been the encouragement of small foundries and machine shops by the system of sub-contracting. In the Maritime provinces there were at one time numerous small foundries and machine shops capable of metal working. One by one these disappeared as active concerns under the pressure of technological advance and the competition of the largescale mill. Many of them have been brought back into operation as a result of the Dominion Government's policy of encouraging sub-letting of contracts for parts, the "bits and pieces programme", as it has been called. The big contractors have thus passed on to smallscale independents an appreciable share of the work. How important this has been in the absence of aggregate figures we cannot say, and the aggregate figures cannot be obtained from the Department of Munitions and Supply. Some notion of the extent of this sub-contracting in New Brunswick, where it has been more important than in Nova Scotia, may be gauged from the accumulation of individual instances we were able to discover by direct observation. In Campbellton one machine shop expanded from an employment of a dozen men to over seventy; in Bathurst a new machine shop was started; it now employs fifty men. A new machine shop was started at the mouth of the Miramichi. Railway machine shops at Moncton are doing sub-contracting as well as much heavier work for the Canadian National. The same is true of the Canadian Pacific shops at Macadam. An old machine shop at Petticoe, long disused, has again gone into operation. At Sussex a woodworking plant has added machine equipment and taken on sub-contracts in metal working and doubled its employment. At Saint John small foundries have doubled and tripled employment. A marine repair company has undertaken machine work, doubling its machine shop equipment. At St. Stephen an old machine shop has again gone into operation. At Fredericton one machine shop has quadrupled employment. At Buctouche and St. Andrews small establishments are engaged in the barge building programme. In Nova Scotia a ship repairing at Liverpool and Dartmouth has given employment to over 300 men, at Shelburne, Mahone Bay and Lunenburg the construction of small boats and barges has given employment to some 300 men, and at Bridgewater and all along the coast small foundries, machine shops and miscellaneous peace time establishments have put in some new machinery, reconditioned old and are working on "bits and pieces" in connection with barges, boats and engines.

In sum, this development has probably been of real importance in a province which has very little heavy industry to benefit directly from the war stimulus. But on the whole it is a temptation to dismiss it as of little permanent importance. Against that temptation must be set the technological consideration that this sub-contracting has been of specialized parts to set dimensions for later assembly. Not only have the small managers, most of them of the skilled machinist, foreman type, gained valuable training and experience, but they are doing a different type of job from that which the small machine shop and foundry used to do. In the old days

they competed with the big mill and, in all lines where the large-scale establishment had an advantage, they lost out. Today their plant is being integrated, as a specialized unit, with that of the big mill. It is a genuine devolution of the industry, in which the small plant is complementary to the mill, not competitive. In this line of specialized production of parts the small shop may not necessarily be at a disadvantage, particularly where equipped by the Government⁴⁹ with the most modern machinery. The final issue must depend, ultimately, on two things; one, the policy, either of government or industry, after the war with respect to the devolution of industry; the other, the general healthiness of the industry as a whole. Even if ownership integration goes on, as it may well do, it may be that the industry will itself wish to follow a policy of plant devolution and specialization. This process, apparent before the war, has been accelerated by it in Britain and the United States and seems to have certain advantages to ownership as well as to the community. The pattern for this devolution has been sketched, so to speak, in Canada, too, by wartime developments. In peacetime the process may be continued. But clearly, it will not continue if the industry is unable to find markets for its produce. If there is a great shrinkage in output there will be strong forces making for the concentration of what work there is in the larger plants and the small units may expect to be "liquidated". Thus, in the last analysis, the future of the "bits and pieces" plants will depend on the general postwar condition of the industry.

Section 3. Demand.

A. Secondary Steel Products and Basic Steel.

The principal market for the basic steel industry is the steel-using industries, including railroading, shipbuilding and construction, so that we may well conclude that the postwar markets for steel ingots will depend, in large measure, on the postwar markets for steel products. At the present moment the prime market for the steel output of the Maritimes is the Maritime steel-consuming industries, and, after these, steel-consuming industries elsewhere in Canada. These industries are largely engaged in war supply; they are making rifled-barrels for naval and military artillery, shell-cases, ships, ship-plates, scantlings, metal boxes for munitions and armament, armour plate for tanks and ships of war and a variety of other material of war. The Maritime industry also continues to make some railroad equipment, cars, axles, rails, fishplate, etc. Its new plant is almost entirely for the manufacture of articles of war,

⁴⁹ Either by a loan, capital assistance to industry, or, in effect much the same thing, under accelerated depreciation under the Excess Profits Tax.

and much of it is frankly not adaptable to peacetime uses.⁵⁰

Prior to the war the Maritime steel industry sold both in the foreign and domestic markets, but of these the domestic was, far and away, the most important. Not only was it the most important quantitatively, but the foreign demand was of a peculiar sort. It was largely the result of special conditions of rearmament abroad which, running beyond domestic supply in Germany, for example, turned to alternative sources of supply regardless of comparative cost. We cannot think of any considerable export market for Canadian steel under normal peacetime conditions. This will probably continue to be true after the war. Though for some years after the war there will doubtless be a continued demand for steel and steel products for armaments and a big demand for construction purposes, the vast increase in steel capacity in Germany, France, the Soviet Union and Great Britain will probably be adequate - and more than adequate - to meet this demand in Europe, and in the United States, where the demand may well be somewhat less keen, the American industry will have a surplus capacity. Moreover, in considering foreign trading, we have to consider that our position is likely to be that of a creditor nation with large surpluses of wheat, paper, non-ferrous metals, and some types of manufactured goods for export. In order to maintain our export trade in these traditionally export staples, on which our economy rests - we shall have to accept increased imports from Europe.⁵¹ Steel and steel products, far from being an export for us, are much more likely to figure as commodities in which we have a lesser comparative advantage, or a greater comparative disadvantage, and are thus products which are apt to figure more prominently than heretofore on our list of imports. However this may be, and it rests, admittedly, on highly tenuous assumptions about postwar international trading, it is fairly certain that the Canadian steel industry after the war will depend primarily on the Canadian market, and, perhaps, on a less protected Canadian market than heretofore.

In the Canadian market the Ontario basic steel industry has dominated the Ontario market of steel-consuming industries making automobiles, light steel and ferrous-alloy steels and steel products. It has also competed in the Ontario and Quebec heavy steel-consuming industries, shipbuilding, railroads, railway equipment and structural steel. Apart from steel wire and rods the Nova Scotia industry has

⁵⁰ From interviews with men in the industry. It is probable that when peace comes they will find that more of the new plant and machinery is convertible than at present they anticipate.

⁵¹ We may postpone the reckoning by largescale capital lending, but ultimately in the service of the debt we shall have to accept imports on an increased scale.

concentrated on the heavy steel consumers, railway car and equipment, rails, structural steel, and has met Ontario competition in the Quebec market. The greater variety of the Ontario market has led to a greater diversification of the Ontario industry. Also, as we have seen the Ontario industry has been able to expand in a way the Nova Scotia industry has not. The great growth in steel consumption in the twentieth century has been in the use of light steels, particularly for motor cars. The Nova Scotia industry expanded in the latter part of the 19th century with the railway development. But this typically 19th century process has not resulted in consumption creation in the present century with the result that the Nova Scotia industry has remained more or less static since the last war.

When we examine the wartime expansion against this background we are struck by the way the war developments have simply gone to emphasize the established trend. In Ontario, and to some extent in Quebec, the Canadian industrial revolution of the war period has led to the creation of a great variety of new industries, notably the aircraft industry, machine and even machine tool industries and a variety of miscellaneous manufactures. Many of these will continue, if on a reduced scale and after considerable technical conversion, after the war, and both in the conversion period and after they should be steel consuming, though not to the extent of the present.

Maritime developments must be examined more particularly. The chief steel consuming plant in peacetime in the Maritime provinces was the combined Eastern Car plant of Dosco at Trenton and the Nova Scotia Steel plant at New Glasgow. But these plants were in the doldrums during the interbella period and could be largely supplied by New Glasgow, while the Sydney plant had to look to the Quebec market - and elsewhere - for its sales. The New Glasgow and Trenton plants today have had their plant equipment doubled by new investment under governmental capital assistance to industry and they are employing two and a half times as many men as in peacetime. It is true that they are very busy on railroad equipment, but the great bulk of their increased output is material of war. Of their new machinery and plant only a small fraction is reckoned by the management to be immediately convertible to peacetime uses.⁵² Even if

⁵² As stated in an interview by a representative of the company. Actually, though the new shop for munitions cannot be converted, it represents only about one-fifth of the new capital invested. Of the rest some consists of basic units that will be of postwar use and some may be more convertible than at present the management is willing to allow.

there is after the war - as is confidently expected - a comprehensive policy of reequipment on the part of Canadian railways⁵³ it is considered unlikely that these plants can operate with more than half their present employment. If all their equipment suitable, either directly or by conversion, for peacetime operations were worked at capacity they could not expect employment for more than 2,000 men.

A large volume of steel scantlings and plate goes from New Glasgow and Sydney to the vastly expanded Pictou Foundry and Machine works - now operated by Foundation of Canada, Ltd., - at Pictou. This mushroom growth, an essential in time of war when shipping losses make additional ship construction a matter of physical possibility not of cost, has had great difficulty in getting an adequate supply of skilled labour. Its operations are a matter of some secrecy, but there is probably no indiscretion involved in hazarding the opinion that no one appears to regard this establishment as one that could expect to compete in postwar shipbuilding. It seems likely that after the war there will be a planned rationalization of the British interests to recapture their dominant position in the world's markets for ships. American capacity has been expanded in wartime to the point where it exceeds the British, and one might expect American yards to resist vigorously a British effort to capture their markets. With such a competition of Titans the Canadian industry, even if subsidised and protected, will have to reduce its output. Canadian shipping companies could not absorb 1,000,000 tons of new shipping a year after the war, even if the entire Canadian market were reserved for the Canadian yards.⁵⁴ Under such conditions the temporary slips and the weaker yards will close down.

⁵³ See the estimates of the Canadian National Railways submitted in a Brief presented to the Special Committee on Reconstruction and Re-Establishment. This Railway reckons it could spend \$67,000,000 on new rails and fastenings in the immediate postwar period, and classifies this expenditure under "Self-Liquidating Projects" as distinct from some of its estimates which are regarded more as luxuries than as necessities.

⁵⁴ The Canadian National Brief to the Special Committee, for example, shows only \$15,000,000 for new ships and classifies this expenditure as "Desirable but Economically Marginal". It is also intimated that special protection would have to be afforded Canadian shipyards if the work is to be done at home rather than abroad. \$15,000,000 might represent about 50,000 tons of cargo shipping, less of passenger liners. This estimate, by one of the largest of Canadian ship-operating companies, based on an estimate covering a period of years, indicates how very very far we are from any likely construction of 1,000,000 tons each year.

These considerations apply also to Saint John and Halifax, though in less degree. Because of the necessary secrecy that surrounds wartime operations in this sort of industry one has to rely on ones personal impressions formed by what is called "field investigations" rather than on more objective evidence. But one does gather the impression that in Saint John the splendid drydock and machine shop equipment, which enables this company to outbid competitors along the north Atlantic seaboard for marine repair, is scarcely matched by the shipbuilding facilities currently being used in warwork by the company. It is not likely, one must conclude, that steel shipbuilding can continue on any extensive scale in Saint John after the war.

Halifax Shipyards, on the other hand, while not expecting anything like the present volume of marine repair,⁵⁵ can expect with fair confidence a continuation of shipbuilding. It is believed that the Canadian government will maintain a peacetime navy and that present naval builders who have specialized in certain types of ships will continue a moderate amount of naval construction. Halifax Shipyards have successfully completed naval ships of a type not being built elsewhere in Canada and expect to continue some naval construction of this type after the war.

All in all steel shipbuilding in the Maritimes will pretty well disappear. If it does the reduction in demand for steel will be of the probable magnitude of 150,000 tons.⁵⁶ If to this figure we add the reduction in tonnage consumed by the manufacture of materials of war both in the Maritimes and the central provinces there will be a probable reduction in demand for basic steel of 300,000 tons. This figure is independent of any postwar recession or falling off in other steel demands. It is the minimum reduction in demand occasioned by the stoppage of direct war industries. Undoubtedly there will be other reductions in demand occasioned by the indirect effects on steel of the slowing up of machine industries, metal box plants, and so forth. This figure is about 50% of present basic steel production in Nova Scotia. Unless there is a postwar depression there will probably be, however, some pickup in demand for ordinary peacetime purposes, construction, railways, etc. Admittedly our calculations grow more and more tenuous as we base them not only on hesitant penetrations of the secrecy-shrouded figures of wartime but also on doubtful assumptions of postwar policy, but we might guess at an expansion of 50% in steel consumption for non-war purposes. This would yield an annual con-

⁵⁵ In 1942 1,700 ships passed through their hands.

⁵⁶ This figure is an estimate. Naturally enough, in time of war, no detail as to how it is reached can be given. It allows for some naval and a small amount of cargo ship construction after the war.

sumption of Nova Scotia steel of 450,000 tons, a figure which by a slight margin exceeds the best peacetime production (1937, 427,000 tons) of the Nova Scotia industry.⁵⁷ Allowing the same ratio of men to output as obtained before the war this figure would mean a reduction in employment at Sydney from the wartime level of 5400 to about 3700. This tenuous calculation is probably about as optimistic as can be made.

In sum we have to conclude that the wartime expansion of the iron and steel and iron and steel using industries in the Maritime provinces has been of a nature which, considering their competitive position and the probable state of postwar markets, will not be permanent. The wartime effects on this industry then, will eventually tend to leave it much as it was. It should continue as a successful competitor in local and Quebec markets in basic steel and in railroad equipment, wire and steel bars. It has not been equipped by the wartime changes or developed by the war to follow the line of great diversification, or is there likely to grow up in the Maritimes a great subsidiary engineering industry. As an employer of labour it will probably, we guess, occupy about the same position as in 1937, with wages, however, rather more in line than they then were with wages paid in the same industry elsewhere in Canada.

One possibility remains to be considered. There is the possibility of developing in Nova Scotia not an engineering but a chemical industry to be integrated with the heavy industries of Cape Breton and Pictou County. Metallic magnesium from dolomite⁵⁸ and sea water is a possible development for Cape Breton. At one time, when the Bessemer process was used at Sydney, a fertilizer, 15%-20% phosphoric acid, was recovered from the slag.⁵⁹ After the introduction of the open hearth process some fertilizer was made from slag, but it was an uneconomic process and was discontinued in 1931.⁶⁰ Because of the high phosphorous content of Wabana ore, to which we have previously referred, it was nevertheless thought that attention should be given to possible by-product utilization of the slag, and experimental tests in 1939 have shown the possibility of developing a satisfactory process for utilizing the slag for fertilizer by-products.⁶¹ The process, however, is

⁵⁷ See Dominion Bureau of Statistics Annual, Iron and Steel and their Products, 1938-39, p. 64.

⁵⁸ Report No. 60. Reports of the Nova Scotia Economic Council, Vol. VI (1941), p. 148.

⁵⁹ Report No. 53. Reports of the Nova Scotia Economic Council, Vol. VI (1941), p. 107.

⁶⁰ Ibid.

⁶¹ Report No. 58, op. cit., p. 121-133.

still in the experimental stage.

Barites has been found in a rich deposit at Walton⁶² and this, with the salt deposits at Malagash⁶³, the possibilities of coal tar derivatives and the chemical possibilities above referred to, might well combine to support a chemical-dye-fertilizer industry as a complement to the existing heavy industry, a complement, which, by by-product utilization, would appreciably reduce the unit costs of the heavy industry. It has probably been the lack in Nova Scotia of any such complementary industry, either chemical or engineering, a general rather than a particular situation disadvantage, which has put the Nova Scotia industry at a disadvantage with the British, German or American industries, all of which have heavy by-product utilization from extensive and well-developed chemical industries.

B. Demand. Ore and Coal.

The demand for Wabana ore will depend almost entirely on the demand for fabricated steel, and if our estimates are correct that Sydney steel fabrication may continue at something approaching the 1937 level, then ore output should go on at about the rate of the immediate prewar years. There is some slight possibility of increased use of native, Nova Scotian ores, particularly if one of the consequences of American naval and military establishments in Newfoundland is to raise the cost of Newfoundland labour. On the whole, however, it is unlikely, given the advantages of the Wabana field, that any probable increase in wage rates would seriously affect the operations at Bell Island.

Whereas the demand for ore is directly derived from and dependent on the demand for fabricated steel, the demand for coal is largely independent of the demand for steel. In peacetime coal sales to the steel plant at Sydney ran to an average of 55,000 tons monthly.⁶⁴ This in wartime has increased to over 85,000 tons. The peacetime figure, amounting to an annual total of 660,000 tons, represents a little over 10% of the total Nova Scotia output in a year such as 1939. For the rest the peacetime coal market for Nova Scotia coal consisted of the railways, the Maritime and Quebec domestic markets and ships' demand for bunker coal. The peacetime division of a good year's output, 6,000,000 tons, was about as follows:

⁶² Report No. 60, op. cit., p. 148. See also p. 117.

⁶³ Report No. 57, op. cit., p. 117.

⁶⁴ From a statement by an official of the company.

Sydney steel plant	660,000 tons	
Quebec industrial market (including coking coal)	2,740,000	"
Railways (Maritime division).....	1,000,000	"
Maritime domestic and industrial market	<u>1,600,000</u>	"
Total	6,000,000	" ⁶⁵

From this the great importance of the Quebec market to the Nova Scotia industry can immediately be seen. After all the Maritimes are not heavily industrialized, the one industry established on a large scale, except for steel, is pulp and paper and it is not a coal using industry. One cannot expect any great growth in domestic consumption. The coal consumed by the railway depends on the volume of traffic and no great expansion of that can be anticipated. Bunker coal now takes only some 130,000 tons annually and that will not increase. Coal for coking at the steel plant will run about the 1937 level, if our calculations are correct. Hence the ability of the industry to market over 3,000,000 tons a year depends almost entirely on its access to the Quebec market. Other alternatives to Quebec can quickly be ruled out. We have already seen that coal costs in Nova Scotia are such that Nova Scotia coal could not enter either the British or American market. It would be difficult to compete with American coal in South America, and there may be there a considerable development of local sources of supply.

One of the effects of the last war was that the Quebec market, built up with the utmost difficulty was lost to the Nova Scotia operators. The steel company, ships and railways - in the last war ships were bunkered with coal and the great Atlantic convoys bunkered at Sydney and Halifax - and Maritime domestic consumption took the entire Nova Scotia output. The Quebec market, never too satisfied with Nova Scotia coal, formed connections with American sources of supply. By 1921 attempts were being made to regain the Quebec market, but in that year, of an annual production of 5,735,000 tons, only 880,000 were sold in Quebec.⁶⁶ The Quebec market was regained only by means of a subsidy of \$2.00 a ton paid to the railways, based on the difference between the cost of water haulage via the St. Lawrence and rail haulage, a subsidy that enabled Nova Scotia coal to enjoy a year round transport cost advantage over American bituminous which had to be hauled by rail. By 1929 Quebec sales had grown to 2,400,000 tons;⁶⁷ thereafter, during the Depres-

⁶⁵ This table is a composite of average distribution. Year by year actual distribution departs in one way and another from the picture as presented here. See Coal and Coke Statistics for Canada, various years.

⁶⁶ Coal and Coke Statistics for Canada.

⁶⁷ Ibid.

ion, they declined, rising again to 3,000,000 tons in 1940. Thus the first full year of the present war had not the same effect as the war of 1914-1918, and, because there was not the same demand for ships' bunkers the coal companies hoped to retain the Quebec market through the present struggle. But in 1941 the slowdown strike reduced coal output from 6,700,000 (1940) to just under 6,000,000 tons and steel company and railway consumption in the Maritimes increased by about 500,000 tons, so that a reduction of over 1,000,000 tons occurred in the amount available for Quebec. In 1942 the situation grew worse. Though labour difficulties seemed less acute there was great shortage of shipping. There was available for Quebec about 1,500,000 tons and this could have been increased to 2,000,000 tons or more, but the coal was piling up in stockpiles. The railways could handle only a small fraction of it and ships were scarce. Moreover the necessity of sailing in convoy on the St. Lawrence route reduced the tonnage any given ship could carry in a year. By late summer only 700,000 tons had been shipped to Quebec. More was carried before the river froze over and some, no doubt, went by rail, but, though final 1942 figures are not yet available, it is doubtful if over 1,000,000 tons of Nova Scotia coal reached Quebec in 1942.

It is too soon, in the light of present events, to draw final conclusions. The American coal strike which cut off the chief alternative source of supply will have gravely reduced the American allotment of steam and coking coal to Canada in 1943, and Nova Scotia coal may well be reestablished in the Quebec market during the war. In the light of the emergency conditions Nova Scotia coal will be given shipping priorities which a year ago were refused.

Thus it may be that Nova Scotia coal will keep the Quebec market during this war, or at least, keep a stronger toe-hold there, than it could during the last war. Moreover the technical trend is today working for coal, whereas in 1919 it was working against it. Then oil for domestic and heating purposes, hydro-electric power for industrial power purposes, were both being rapidly developed and their competition was cutting into the market for coal. By 1939 that process of replacing coal by oil and hydro-electric power had reached its peak. New methods of using coal had made it cheaper and easier to use for heating, and new techniques of generating power from coal had made it possible for coal to compete with hydro for industrial power, particularly in the Maritime provinces where streams are small, and the flow irregular and, in summer scanty.

The real test for Nova Scotia coal will be that of cost. One cannot see an expanding market, but a market for 6,000,000 tons should be possible if relative cost conditions are unchanged. This means, as we have seen, the closing of some mines and improved techniques in others, and it means a reduction in absenteeism and

work stoppages and improved labour-management relations. How this improvement can occur, particularly if there is mechanization, we cannot say. It will demand a new attitude on the part of the men and of the company. Perhaps it is not so much a matter of wages. With mechanization, steady work, a regular market, earnings in Nova Scotia mines could average higher than in any alternative occupation in the Maritimes, could average as high - in real purchasing power - as in American mines. But the conditions of life in the coal-mining towns would have to be improved and other employment would have to be offered for those who could not find employment in the mines. Thus the problem may be largely a social one, and, if this is so, would require social solution, a bold and generous plan of regional development and social amelioration. If such a programme is not regarded as the responsibility of the corporation, perhaps the mines should be operated by some agency more sensible of its social and community obligations, or perhaps some joint company-governmental scheme could be worked out. But such questions of policy are beyond the scope of this work. The search for a solution in policy should rest in the first instance on full knowledge of the problem. This we do not pretend to have offered. Perhaps, however, we have indicated the extent and nature of the problem and perhaps this may encourage other investigators to enter on the exploration of this confused and dark, but most interesting and important field.

Chapter 6

AGRICULTURE

Section 1. Introduction.

The Maritime provinces are often thought of as being primarily agricultural, in the sense of being rural, unindustrialized "country" provinces. As we have seen certain other occupations are more productive in terms of money value of products than agriculture, but if one includes all the part time farmers, the men engaged in fishing, mining and lumbering as well as agriculture, then it is true that a larger number of people are dependant on agricultural pursuits than on any other single industry. In 1931 the rural population of the three provinces was 626,284 and in 1941 this had increased to 691,107.¹ The Eighth Census showed 127,964 farm workers, "gainfully employed in agriculture",² of whom less than 3,000 were hired labourers, the remainder being members of the farmers' families, owner-occupiers of 77,078 farms.³ This gives us an indication of the predominant characteristic of Maritime agriculture, the smallscale, owner-occupier mixed farm. The average holding in Prince Edward Island would be (1941) a farm of 35 acres in field crops,⁴ in New Brunswick of 27 acres,⁵ in Nova Scotia of 15 acres.⁶ These averages are smaller, probably, than the mode and are exclusive of uncleared and uncultivated land, so that the typical farm holding, including the woodlot is much larger. But if we are interested, as in this chapter we are, in purely agricultural produce, exclusive of wood products, the figures we have shown above are significant. Thus the typical Maritime farm is a small holding, worked by the farmer and members of his family; unspecialized in produce, with a small cleared area, a few live-stock and, probably, a woodlot not too wisely exploited.⁷

To the lack of specialization we have to admit certain important exceptions. These are the potato industry of Prince Edward Island and Carleton and Victoria counties in New Brunswick, horticulture, particularly of apples in the Annapolis Valley in Nova

¹ Eighth Census of Canada - Rural and Urban Population.

² Eighth Census of Canada, Bulletin 31.

³ Eighth Census of Canada, Bulletins 5,6,18.

⁴ Calculated from Eighth Census of Canada, Bulletins 18,23.

⁵ Calculated from Eighth Census of Canada, Bulletins 5,23.

⁶ Calculated from Eighth Census of Canada, Bulletins 6,23.

⁷ Cf. Chapter 4.

Scotia, and the middle reaches of the Saint John Valley of New Brunswick, truck gardening along the lower Saint John and Kennebecasis valleys in New Brunswick, and in the Truro area in Nova Scotia, dairying centered in Harvey and Sussex in New Brunswick and Truro in Nova Scotia and haying on the Tantramar. From some of these specialized crops, potatoes, apples, hay and fox furs, there was some surplus for export but others, notably the dairy industry, were not adequate to supply the domestic market. The Maritimes were not self sufficient even in agricultural produce actually grown in the Maritimes, and had to import grains, feeds, dairy produce and meats, as well as the usual agricultural imports usual to all Canadian provinces.

These provinces have particular climatic and soil advantages which would seem to indicate the sort of agriculture which they should sustain, although we should remember that questions as to the accessibility of foreign markets and the degree of isolation of the home market, as well as considerations of comparative advantage are of importance in determining the proper localisation of industry. We might, however, ask what the agricultural experts regard as the crops most suitable to the natural capacities of Maritime soil and climate and then ask whether there are or are not economic considerations which militate against specialization in these crops. On the evidence available to the present writer it seemed that the preponderance of expert opinion leaned to the view that the climate and soil of the Maritimes gave these provinces marked advantages in the production of grasses, hay and wood crops. In certain sections other specialized crops could be grown, notably, potatoes in the so-called clay belt which includes most of Prince Edward Island and two counties of New Brunswick, apples along the river valleys of the Saint John and the Annapolis, cranberries and other bog crops in the low areas of wood swamps, and perhaps small fruits in the Grand Lake area of New Brunswick. If we exclude these exceptions for the time being, so that we shall be speaking generally of New Brunswick and Nova Scotia, but not of Prince Edward Island, we find that the natural capacities of climate and soil indicate certain very definite lines of agricultural specialization in the provinces. The crops, speaking without regard for the excepted areas, ought to be hay for export, beef and dairy cattle, sheep and hogs, and forest crops. This suggests two types of farming, one the highly specialized dairy farm, a large unit with the farmer devoting full time and employing help to tend the herds. The other is the mixed farm, where the raising of some fairly "easy" animal, such as beef cattle, hogs or sheep is combined with mixed sustenance farming in summer and woodlot operations in winter. Maritime farming has already developed somewhat in this direction, but with important differences. The emphasis has usually been in favour of the mixed farming, or uneconomic exploitation of the woodlot. The experts emphasize that the Maritime's great advantage lies in the raising of stock. One expert said that on land, that,

though it graded high for fertility among sample lands in New Brunswick was nevertheless rated about 50% below the fertility of a similar experimental plot in Ontario, he nevertheless obtained a much better acreage yield of timothy and clover than his Ontario opposite number.⁸ Moreover the climate and natural topography are suitable to cattle and stock raising. With these natural advantages the agricultural experts seem to believe that the Maritimes should be stock country, with the emphasis on "easy" stock where other crops will also demand some attention or where there is an inadequate labour supply for dairy cattle, and on the dairy industry in areas where it can be profitably maintained. There seems little, if any, evidence to support the contention frequently heard that Maritime hogs, beef or sheep need be of inferior quality.

There are not, on consideration, serious economic objections to a stock industry in the Maritimes. The domestic market alone would consume twice the present dairy output, more than twice the present beef output, and a considerable increase over the present output of sheep and hogs. For competition in the overseas market the Maritimes are favourably situated with respect to the greatest importer of meat products in the world. The present imports come from considerable distances and ought not to be able to hold any price advantage in the Maritime market over domestic produce. The only disadvantage is the dependence of the farmers on imported grain feed. During the war this has been overcome by what amounts to a federal subsidy on feed, shipped to Maritime stock raisers, but there is no reason to believe that this subsidy will be permanent. Agriculturalists do not believe, however, that this is a serious objection to stock raising in the Maritimes. More feeds could be grown locally in place of other produce and others could be imported if necessary.

A far more serious objection - or rather obstacle - to the development of a beef cattle industry in the Maritimes has been the failure to establish proper supervision over the slaughterhouses. A good slaughterhouse will establish proper standards of feeding and breeding and grade the beef properly. It will refuse unsuitable cattle and it will see that the meat is properly treated and hung. It will protect the public against inferior quality and against disease and infection. In the Maritimes animals are killed under the most unsuitable conditions and no effort had been made prior to the war either to protect the public against the dangers of disease or to set and maintain proper standards of quality. Thus Maritime "domestic" beef enjoys a poor reputation. Many people - including those of income classes which form the most profitable market - will not buy domestic beef and believe it necessarily inferior. The Maritime Beef Cattle Growers' Association have demonstrated that properly graded, inspected and slaughtered Maritime

⁸ Superintendent of a Maritime experimental station, in conversation.

beef is of equal excellence with western steer beef but a difficult task remains for them to convince the general buying public. Indeed it is doubtful if this is the proper way to set about it, because no demonstration is sufficient if the bulk of domestic beef is to continue to find its way to the consumer via the present local slaughterhouses. There is something of a vicious circle in this problem, for it is impossible for a small packing house which meets all the requirements of good practice to compete with the large houses of central Canada, and the development of large packing houses is possible only if a large volume can be assured. To ensure a sufficient volume the beef cattle industry and the hog and mutton industry in the Maritimes would have to be greatly increased. The problem is not to find a market but to ensure an adequate flow of supply. Of course a fullscale packing plant is not necessary and some of the farmers argue that it is not desirable because they believe that large plants of that sort, acting as monopsonists, depress the price which the farmer can obtain and, selling to the public as monopolists, raise the price unnecessarily to the consumer, thus creating a price spread that is unfair equally to the final consumer and the primary producer. It is unlikely that this contention is without truth, though the establishment of a second largescale meatpacking plant in the Maritimes might introduce an element of competition which, considering the restricted supply of cattle, would react favourably both on the farmers and the consuming public. Though on the basis of present evidence it is impossible to be certain one might advance the following tentative conclusions about the present state of affairs. The single meatpacking plant in the Maritimes is a partial monopsonist. It is the only buyer of its sort for large areas of the Maritimes, though in northern New Brunswick it has to meet competition from Quebec buyers of a similar sort, but its position is in part regulated by alternative though less satisfactory outlets through local slaughterhouses. Unfortunately the local slaughterhouses, being what they are, compete only on low quality animals, and consequently the farmer who has ambitions to develop high quality stock and get into the best market is usually faced with a monopsonist buyer. Moreover the single firm is by so much the biggest buyer that, like all monopsonists, he is able to exert a disproportionate influence on the price. Thus there is some justice in the complaint that the single packinghouse dominates the market and sets the price offered to the primary producer in the Maritimes. But as a monopolist, selling to the public, the packinghouse has to meet the competition of firms all over Canada. Unless it is true that there is a price agreement in the meatpacking industry on a national scale, there are very definite competitive limits put upon the price which the packinghouse can charge the public. Now the packing house in question is small compared with those of central Canada and consequently its overhead charges are a high proportion of its unit costs. In order to put its produce on the

market at a price which competes with meat shipped from Quebec packinghouses it has to keep all its operating costs at a minimum. The consequence has been, considering its monopsonistic, but not monopolistic, position, that there is a strong incentive to keep its raw material and labour costs down. Thus there is probably truth in the two complaints that are frequently levelled against the meatpacking industry in the Maritimes, that it pays low prices to the primary producers and low wages to labour. The case for the company can be presented briefly. If it did not do this it would have to go out of business. There is no other solution consistent with its small volume of business. If it did go out of business the beef cattle and the high grade mutton and pork products industries would disappear in the Maritimes and the primary producers dependent on a packinghouse capable of taking good quality stock would be ruined.

It would be presumptuous to attempt to set out the proper solution of this problem. It is possible it lies in the establishment of a competitive packing plant, but this is rather wishful thinking, because the low volume of raw material production is such that no house is liable to attempt such an undertaking. It would not be profitable, and we cannot look to private enterprise to operate without some expectation of profit. Another solution is the establishment of a few strategically situated modern slaughterhouses, sufficiently large to receive a federal inspector. These would have to be established either on a municipal⁹ or cooperative basis and could not be expected to be profit-making concerns. Their effect would be to stimulate the beef cattle and other stockraising industries, to protect the consumer, and to stimulate the domestic consumption of good quality domestic meats, and to improve the price to the primary producer. The effect on the present meat packing establishment might be harmful at first, but if the production of good stock was stimulated, as it should be, the general effect ought in the long run to be beneficial to the meatpacking industry, because it would increase the flow of raw materials and enable the plant to operate on a sufficient scale to be able to raise its price to the producer and even its wage rates.

Whereas beef cattle, hogs and sheep can be raised on a commercial basis on a farm which is not specialized, dairy cattle require, in quantities commercially profitable, full time attention. The Maritime dairy industry produces barely half domestic require-

⁹ Saint John and Fredericton have both started municipal slaughterhouses of the sort suggested here. This wartime development should show the practicability of such municipal ventures, and if they prove successful they may well be imitated in other Maritime towns.

ments and ought to be expanded. Prior to the war expansion was in process, and dairy farmers were finding it a profitable line of agriculture. With the European herds broken up and partially destroyed there are great possibilities for a profitable dairy industry in cattle country like the Maritimes. Indeed the dairy industry would seem to be an ideal industry in every way for these provinces, considering their climate and topography, their geographic situation and the scale of agricultural undertaking. Any agricultural policy for these provinces should surely stress dairying as one of the prime supports of a profitable and stable agriculture.

The opinion of agricultural experts seemed fairly unanimous that in the potato and apple industries the Maritimes had two specialized cash crops, dependent on an export market, that, valuable as they are, had been over exploited. An export crop is always hazardous in a special way. All agriculture is hazardous in its dependence on weather and natural conditions beyond the control of the farmer, but an export crop has also the hazard of sharp changes in the world price, changes which may result in a bad market in years in which the crop is good and good markets in the years when the weather has been unkind to production so that there is little crop if any to sell. Of course, it may be argued that all crops are subject to the same vagaries, but there is a marked difference between the stability of the domestic market for dairy produce and of the export market for seed potatoes. In the Maritimes the potato farmers and the apple growers have tended to specialize entirely on their cash crop. Along the Annapolis Valley you will see great orchards, beautifully tended and scientifically cultivated; small gardens may surround the farmhouse, but no very serious effort is commonly made to develop any alternative crop to the apple. The same thing is true in the potato districts, though perhaps less so in parts of Prince Edward Island than in north-western New Brunswick. Some of these farmers have enjoyed years of wealth, years in which their incomes exceeded by many times the farm incomes of other farm groups. In other years they have found themselves destitute of income, obliged to live on their savings. Moreover, particularly in some of the potato areas, they have gone far in cropping out their land with a single crop, and in parts of Carleton County the New Brunswick potato grower has to face in the very near future a seriously declining fertility and a reduced crop per acre.¹⁰ The South American market is a peculiarly unstable one because of the dependence of South America for foreign exchange on the state of the world market for their exports. There would thus seem to be a strong case for the development of some sidelines in these specialized farms, so as to give greater stability and a more even

¹⁰ Minutes of an interview with an agronomist.

farm income. Marketing methods have tremendously improved and it is less true today than it was that the potato or apple shipper enjoyed the profits from a price spread that was at the expense of the prime producer. Though cooperative marketing is not characteristic of either industry, it exists in both, and associated marketing with government supervision and assistance and with rigid standards set and maintained is the rule. Probably the marketing arrangements in these two specialized crops are better organized than in any other line of Maritime agriculture. But the time is coming when the potato growers will have to diversify their crop, and the apple growers, though less pressed by soil conditions, might do well to consider a similar policy. The ideal diversification would seem to be along lines of stock raising, mixed crops and fodder and, in some areas possibly, other small fruits.

2. Effects of the War on Maritime Agriculture.

On the basis of this partial and brief summary of Maritime agriculture we shall attempt to state and assess the effects the war has had on this industry. Clearly the statistical indications of the Eighth Census, taken in 1941, cannot be relied upon to point solely to wartime changes,¹¹ nor, on the other hand, will all the wartime changes be revealed in these statistics.¹² Yet these are the most reliable statistical indices we have, so we append some of the more significant tables to this chapter and, in the course of this section shall make some reference to them. The tables are documented where they appear so that textual documentation is omitted.

"The greatest influence¹³ of the war so far on Maritime agri-

¹¹ Changes, as we shall show, in the balance of rural to urban population would appear to have taken place through the depression.

¹² Many of the more notable wartime effects were not pronounced in the summer of 1941.

¹³ The balance of this chapter is based on a study entitled "The Influence of the War on Maritime Agriculture" made by Professor J.E. Lattimer of MacDonald College for the Institute of Public Affairs, Dalhousie University, as a part of this general research project. I have, with Professor Lattimer's permission, quoted extensively from his study; in places, however, I have summarized and in places have appended material of my own. Such material I have footnoted so as to free Professor Lattimer of any responsibility for my opinions. The extensive direct quotations from Professor Lattimer's study are in inverted commas, and will not be further documented in footnotes. I take this opportunity of expressing my gratitude to Professor Lattimer for permission to make this use of his work.

culture has been to make jobs available for the surplus labour which rural areas usually provide.

"This is another way of saying that the greatest influence on modern commercialized agriculture is to raise the purchasing power of those engaged in other industries. This is no new or recent discovery. Nor is it confined to the area under discussion. Yet it becomes clear in this particular period because the war followed many years of unemployment in other industries. It also is especially apparent in the Maritime provinces on account of the proximity of the area to the chief theatres of war.

"The absorption of the surplus labour in agriculture in war work has already had a pronounced influence on farming. Not only has this development expanded markets for food products generally; it has also left fewer farm workers to share the increased returns.

"The nature of the war and its changing influences from day to day must result in variation in influence on different sections according to their special lines of production. Hence any generalization can scarcely be expected to apply to all areas. Even in an area where the general result may have been in one direction some exception may be outstanding. In wartime, some types of business benefit; others are casualties. Something similar may occur in farming. Agriculture in the Maritimes furnishes some few examples of war casualties (such as apple production) though the general influence has been to increase returns.

"The most influential factor on farming is the number, location and shifts in the population. The trend in population in the Maritimes was apparently quite different in the last decade as contrasted with the previous similar period. From 1921 to 1931 the area recorded an increase of 8,775 or 0.9 per cent. From 1931 to 1941 the increase was 121,307 or 12 per cent. Part of this change was due to the war which was well on in its second year when the census was taken. Part of the change was due to other causes.

"Where this population increase occurred gives some indication of why it took place. The increase of 121,307 was made up of an increase of 68,723 in the rural and of 52,584 in urban population. The reversal of trend was in the rural proportion of the population. The record of rural population has been downward for many decades. In 1901 the rural population was 672,930. In 1931 it was 626,284. In 1941 it was 691,107. The rural population of the area, after declining in the first three decades of the century by 46,046 added 68,723 in the decade from 1931 to 1941. This is the outstanding revelation of the 1941 census records.

"This development cannot be due to the war though the war was under way when these records were taken. It was clearly due to

other causes. The cause was that during the thirties the surplus population of the rural districts was not absorbed by local industry or tempted to migrate. The surplus population remained where it was provided, not being wanted elsewhere.

"The provision of population is quite a contrast. The records that enumerate the people classify them by sex and by age. In 1941 there was an excess of males in the rural parts of the area of 39,729. This was an increase of 18.9 per cent in the rural area during the ten-year period. On the other hand in the urban part of the area the excess of females was 11,401, an increase of 36.2 per cent in the decade. The difference in the proportion of the sexes in the urban and rural parts of the area warrants further study.

"Dependence on rural districts to provide the people for urban areas is customary. In 1931 the rural districts of the area under discussion recorded 220,840 children under 15 years of age. The total female portion of the rural parts numbered 296,441 at that time. There were, therefore, 1.34 females per child under 15 in the rural districts. At the same time the urban areas numbered 195,546 females all told and 118,864 children under 15. In urban areas the number of females per child under 15 was 1.65. In 1941 the position is changed somewhat. The number of females per child under 15 years was 1.45 in the rural and 1.91 in the urban areas.

"Obviously the rural areas are much less attractive to females than males. Even though there are many fewer females in the rural districts than males the provision of people is proportionally greater. The rural women carry a proportionally heavier burden than those in urban areas. This is a sociological problem of some importance. The writer is willing to turn this over to the sociologists. But not before suggesting that if increased population is desirable, then, the question might be considered as to whether it might be more effective to make local rural areas more attractive to females than to spend so much effort in trying to entice migrants from other countries.

"The greater increase in rural than in urban districts during the decade of the thirties was not peculiar to the Maritime area. The quinquennial census of the three Prairie provinces offers another example. This reveals also the part of the decade that witnessed the greatest extent of this trend. From 1931 to 1936 each of the provinces of Manitoba, Saskatchewan and Alberta showed a much greater increase in rural than in urban population. During that period only one province, Alberta, recorded any increase in urban population. The total increase in population for the area in the five-year period was 61,362. The gain in rural population was 68,999 and the loss in urban was 7,637. It is not unusual for the Western provinces to show a gain in rural population.

What was surprising was the decrease in urban population in that period. This was a reversal of trend. This change left the proportion of rural to urban population higher in these provinces in 1936 than in 1931. The census of 1936 indicated the existence of surplus labour on farms that was not being absorbed by other industries. The 1941 census revealed the same condition in the Maritimes.

"The lack of opportunity for surplus farm labour to find employment in other industries is clearly revealed by one part of the Maritimes that is particularly dependent on farming. This is Prince Edward Island. The population increased in the decade from 1931 to 1941 for the first time in forty years.

"Additional workers in farming might easily be absorbed particularly inside the house as has been suggested. This might be all to the good if farming was profitable enough to afford it. Additional workers might be necessary if and when accompanied by increased production. This will be the next topic of discussion.

"Many interested people wondered how the fairly large harvest of 1940, the first year of the war, was garnered with so little apparent difficulty, in regard to labor. The 1941 census figures explain why. In 1941 the number employed in farming was 114,777 larger than in 1931. Absorption by the services and industry since the census was taken left scarcely enough farm workers to secure the bumper crop of 1942.

"The Maritime provinces reported 19,305 more workers in farming in 1941 than in 1931. The gradual absorption of this surplus labor was particularly apparent in a county of Nova Scotia where a comprehensive survey was carried on during these years. Cumberland is a county of many industries including forestry, farming, mining, manufacturing and fishing. The outbreak of the war stimulated first forestry and mining. By 1941 mining was to some extent limiting the labor available for lumber operations. In 1942 assembling planes and building minesweepers drew labor from some distance. During these years the labor available was somewhat spotty, even in this one county. This spottiness of the labor supply is fairly typical. Districts where war activity is apparent records labor scarcity while only a few miles distant there is no great lack of labor. This was particularly noticeable in 1942 on the South Shore of Nova Scotia.

"The effect of the war on the wages of farm labor in this area was pronounced. This is made clear by a comparison of the wage rates reported for farm labor in the area as contrasted with Canada as a whole.

Yearly Wages in Farming

(Males)

	Canada	P.E.I.	N.S.	N.B.
1939	424	372	452	439
1940	546	399	472	518
1941	559	498	631	625

"From 1939 to 1941 the wages of farm labor increased 32 per cent for Canada as a whole, 33 in Prince Edward Island, 40 in Nova Scotia and 42 in New Brunswick. In 1941 the highest yearly wages in farming were paid in Nova Scotia. The second highest was British Columbia and the third, New Brunswick. Prince Edward Island even with the pronounced increase in 1941 over the previous year paid the second lowest wages in that year, the lowest being paid by Saskatchewan. It seems clear that these provinces that depend most completely on farming secure labor at the lowest wage. Perhaps a better way to say it is that those provinces that have the greatest competition from other industries including forestry and shipping pay the highest wages for farm labor. This was not the case in the war of 1914-18. The influence on agriculture depends on the type of war, as we shall later see. In the meantime, it is necessary to analyse further the census figures on farm labor.

"An increase in the number of workers in any business must be compared to the volume of output in order to get anything approaching accuracy of appraisal. Complete census reports are not yet available. There is one comparison that may be made. Figures for the cropped area as well as the number of workers are available. The increased number of workers in 1941 cropped fewer acres than did the smaller number in 1931. The following table gives some measure of the output per man.

Area Field Crops per Worker

	<u>1931</u>	<u>1941</u>
Area Field Crops	2,027,610	1,825,269
No. employed in Agriculture	108,659	127,694
Acres of Field Crop per Worker	18.7	14.3

"Insofar as area of field crops is concerned there was apparently more farm labor available in 1941 than in 1931. Field crop area is not by any means the only measure of output. Even in field crops a shift from low yielding to high yielding crops per acre such as from hay to potatoes might go some distance to even up results. There was a slight increase in the potato area. In round

numbers the average area devoted to potatoes in the five-year period from 1935 to 1939 was 114,000. The three-year average from 1940 to 1942 was 116,000 acres.

"During the decade numbers of livestock declined. The decline amounted to between 5 and 6 per cent in cattle and hogs; poultry 12, and 35 per cent in sheep. It appears that the increase in number employed in farming was not due to more farming being done. It was apparently due to numbers of workers waiting on the farm for something to turn up. It turned up all right in the following year. In 1942 the scarcity of farm labor was a subject of remark.

"At a public meeting of farmers in 1942 some information was sought on the farm labor problem. The answer was "there is no problem because there is no labor; we just do what we can". How true this was for that section is confirmed by census reports. Of the 127,964 employed in farming in 1941, only 23,370 were hired. This was 18.3 per cent. When over four-fifths of the labor supply depends on the farmer himself and his family whether hired labor is available or not is no great problem. The trouble is the spottiness and seasonal nature of labor requirements. Again the situation has changed tremendously since the census reports.

"In March, 1942, provision was made for what was termed the mobilization of manpower under National Selective Service. Food production was announced as one of the most essential civilian tasks. To ensure and maintain a supply of farm labor, it was announced that any one employed in farming on March 23, 1942, could not take another permanent job outside of the armed services without applying to the National Selective Service. Temporary jobs by farmers up to 30 days require no permit. Working in the woods is also considered an exception.

"Deferment of entry into the armed services may be obtained by farmers provided they are key men in the industry. The decision as to whether they are indispensable to the industry or not is decided by county local men. Judging from travelling with one of these county men the enquiry as to the need for retaining farm boys on the farm is in at least some cases very conscientiously carried out.

"The assistant director of National Selective Service in a recent address at a meeting of the Ottawa Public Affairs Council is reported to have said that after three years of war, workers in civilian industry numbered more than at the outbreak of war. Only in agriculture had there been a loss of labor. Canada's manpower totalled 5,500,000, an increase from 4,300,000 at the outbreak of war. The breakdown was 10 per cent in the services, and 48 per cent in civilian industry. This latter portion remained the future source of necessary manpower.

"It is not surprising that agriculture has so far contributed more than its share to the services and to other essential jobs. The difference in wages as between agriculture and other industries is sufficient explanation if any explanation is needed. The loss of labor from agriculture was from an industry that was overmanned in 1941 compared to the output of the industry. The loss of labor consisted largely of those who were waiting and ready for more lucrative jobs. This loss of labor resulted not only in raising wages for hired farm labor but also raised the income of those farmers working for themselves. This was simply because there were fewer workers to divide the returns among. What has been termed the freezing of farm labor to the land is rather a hard thing to do with wages higher in other industries than in agriculture. It does not square with equality of opportunity. The object of it is to ensure increased food production and at the same time maintain price ceilings.

"No detailed discussion of price ceiling is necessary here. Yet in order to assess the influence of war on agriculture in the area under discussion, or any other area for that matter, it is necessary to give this policy brief mention. It is also necessary to remember a few things, to keep the record straight. Among the points to remember in connection with price ceilings are, first, that the object is to limit inflation. With this objective everyone, farmers included, is in cheerful accord. Second, that at the outbreak of the war prices of farm products, farm wages and farm land values were low. Prices of farm products were much lower in August 1939 than they were in 1914. Farm land values were much lower in 1939 than in 1914. Wages of hired labor on the farm were higher than in 1914 actually but were much lower relatively to earnings in other industries in 1939 than they had been in 1914. Third, when price ceilings were established in the fall of 1941 prices of farm products were as usual not entirely in line with one another. For instance, prices of animal products and field products were in rather unusual relationship. As different parts of Canada provide various farm products in different proportion it follows that the influence of stabilizing prices of that period would have varying results on different sections. Fourth, the quantity of some farm products required has been and is being increased. Consumers are willing and anxious to get more as time goes on. Why should they not want more when the price is stable? It is hard to get increased volume of some goods without raising the price. This is particularly true where there is no ceiling on cost of production, including farm wages. Finally all sorts of indirect methods have been used to increase volumes of farm products and at the same time maintain price ceilings. These indirect methods have included reduced freight rates, fertilizer bonuses, and bonuses on production. The taxpayer or the money lender has been drafted into the service of filling in the hiatus that arises between what people are paying for their food and the necessary supply price required to ensure

production. This is not a policy peculiar to this country. It is also followed in Britain and Germany. It is also being provided for in the United States where price regulation was only recently established. This general policy starting as a war measure has now the support of Sir John Orr as a peacetime policy. It is an indirect family allowance. Whether it ceases or continues with the close of the war will be influential on postwar conditions.

"The influence of the war on any area depends upon the type of war developing. There are some similarities of the current conflict to that of the war of 1914-18. For instance, increased demand developing for bacon, cheese, and manufactured milk products. These eventualities have been foreseen and pointed out. There is another similarity important for our survey. This is the lack of material increase in price of farm products until the third year of the war (1917). Development was somewhat similar this time. It was around the start of the third year of war that price ceilings were established.

"Differences in the present as compared with the earlier war are more significant. The overrunning of Europe cut off many sources of British food supply in 1940. This increased dependence on Canada for food requirements. Another difference was the destruction of shipping. The destruction of shipping was started in the earlier war in 1917. In this conflict the destruction of shipping started with the outbreak of war. This had a great influence on overseas outlets for farm products.

"So far a contrast may be made between the two periods. During the first three years of the earlier war dependence on Canada increased for wheat and other grains. In this war outlet for grain is restricted and demand for bacon, cheese, and manufactured milk products enormously increased. This development has influenced agriculture in the different areas of Canada depending on the products of that area."

In the Maritimes the greater influence on dairy products and livestock has definitely encouraged stockraising. This encouragement has shown itself in three ways, by the increase in outputs of cheese, butter and milk, an increase limited only by scarcity of labor, by an increase in the quantity of stock, particularly hogs, kept on small mixed farms, and by a marked improvement in the quality of stock, an improvement partly attributable to better sires, but largely to the development of artificial semination, a scientific advance in the use of which Maritime farmers have led the Dominion. Perhaps the appearance of good municipal slaughterhouses in Fredericton and Saint John is also partly a wartime effect.¹⁴

¹⁴ This addendum by B.S.K.

"There have been war casualties in the farming business as well as in other lines. One of the first casualties of the war was the export apple trade. This is the leading surplus product of the area under discussion. This product has been treated in detail¹⁵ and does not require further discussion now. Another surplus product is potatoes. Some distant markets were lost and not until this year was any great expansion of production warranted or encouraged. Another surplus farm product is that of fur farms. This was also something of a war casualty though already improvement has taken place. In the meantime many fur farms went out of business in 1939 and 1940. The number of fur farms in the area dropped by 28 per cent from 1938 to 1940. Even with this liquidation of breeding stock the total revenue from the business declined from \$1,799,046 in 1938 to \$1,195,008 in 1940, a decline of over one-third.

"On the other hand agriculture in the Maritime area has on balance benefited as contrasted with some other parts of Canada due to the effect of this particular war on prices. How this has come about requires an examination of the movement of prices during the period. The movement of prices during this war has been somewhat different from that of the earlier war as has been suggested. The years from 1913 to 1920 and from 1939 to 1942 are given for comparison.

Index Number of Wholesale Prices(1)
1926 = 100

	<u>All Commodities</u>	<u>Canadian Farm Products</u>	<u>Field Products</u>	<u>Animal Products</u>
1914	65.5	70.2	65.4	78.3 plus 12.9
1915	70.4	77.9	76.9	79.5 plus 3.4
1916	84.3	89.8	88.8	91.4 plus 2.6
1917	114.3	128.5	134.5	118.4 - 16.1
1918	127.4	132.6	132.0	133.6 plus 11.6
1919	134.0	146.7	142.6	153.5 plus 10.9
1920	155.9	160.6	166.5	150.8 - 15.7
1939	75.4	64.3	54.2	81.2 plus 27.0
1940	82.9	67.1	55.9	85.2 plus 29.3
1941	89.9	71.2	56.5	95.8 plus 39.3
1942(2)	95.8	81.5	66.3	107.0 plus 40.7

(1) Economic Analyst, Ottawa

(2) June only

¹⁵ J.H.Lattimer, Some Aspects of Agriculture in the Maritimes - Public Affairs, Vol. V, No. 2, Winter 1941.

"The first point to note is that price of all goods was 9.9 points higher in 1939 than in 1914. On the other hand, prices of farm products were 5.9 points lower. The second point is that from 1939 to June 1942 price of all goods increased 20.4 points and that of farm products 17.2 points. The difference between prices of all goods and farm products was greater in June 1942 than in 1939.

"A point of interest is the difference between the prices of the two groups of farm products in the two wars. From 1914 to 1917 the prices of field products and animal products though varying from year to year averaged very close together. From 1939 to 1942 the price of animal products averaged 34 points higher than that of field products.

"The most important factor in regard to prices is a comparison of present prices with the year 1917 which was the third year of the earlier war. Prices of farm products as of June 1942 were 81.5 as contrasted with 128.5 in 1917. This is a difference of 47 points. The great difference was in field products. Animal products in June 1942 was 107.0 and in 1917, 118.4, a difference of 11.4 points.

"For the Maritime provinces farm income from cash sales increased from 31.1 million dollars in 1939 to 37.2 million dollars in 1941. This was about the same rate of increase as for the country as a whole during the period. This increase varied in different parts of the area as the following records show:

Income from Cash Sales
of Farm Products

	1939 Mill.\$	1940 Mill.\$	1941 Mill.\$
P.E.I.	6.4	6.5	6.4
N.S.	12.9	13.8	17.1
N.B.	<u>11.8</u>	<u>12.5</u>	<u>13.7</u>
Total	31.1	32.8	37.2

"This breakdown seems to indicate that the influence of the war on income from farming has been greatest on those areas least dependent on farming. The trend in wages for farm labor points in the same direction. Wages paid for farm labor depend partly on what the industry can afford to pay and partly on what has to be paid in competition with other industries.

"This brings up the question of comparison of returns in agriculture and other industries. The total national income of Canada is estimated for 1942 at \$6,500,000,000 as compared with \$3,800,000,000 in 1938. This is an increase of 70 per cent. The cash income from sales of farm products is estimated at from

15 to 25 percent above last year. By taking the medium estimate of 20 per cent increase and comparing that with the known figures of 1938 cash farm income in 1942 is estimated to be 63 per cent above 1938. This is only an estimate and more accurate figures will be later available. This estimate does, however, support the earlier more definite records. In other words, farming in the area has benefited from the war so far largely because it does not depend exclusively on farming.

"No study of the influence of the war on agriculture would be complete without paying some attention to what farmers consider their land is worth. For purpose of comparison the following table may be consulted.

Land Values per Acre

	P. E. I. \$	N. S. \$	N. B. \$
1914	39.00	28.00	26.00
1915	38.00	28.00	22.00
1916	39.00	34.00	29.00
1939	35.00	33.00	29.00
1940	32.00	28.00	24.00
1941	34.00	31.00	25.00

"During the first two years of the war of 1914-18 land values increased slightly. In the first two years of the present war, land values of the area declined.

"The natural resources of the major part of the area particularly the mainland are of such a nature that part-time farming is carried on. The influence of the war on agriculture depends partly on the presence or absence of the prosperity of other industries which are carried on as a side line to agriculture, where farming may be the side line to other industries. Considerable attention has been given to sidelines to farming. Less attention has been so far given to farming as a possible side-line to other industries.

"In the two provinces on the mainland farming and forestry are pretty closely connected. The writer heard of a man living on the south shore of Cumberland County who had his first days work in August after leaving the lumber woods in March, 1940. In the locality where this occurred there was no scarcity of neglected farm land. Part-time farming would appear to have some chance among lumbermen as well as those engaged in other industries.

"In the Cumberland County survey¹⁶ it was found that a certain portion of the farmers interviewed derived over half of their income from other sources. They were part-time farmers. Their financial returns were above the general average.

"In this survey returns from forestry operations were also included. Those farmers who were engaged extensively in lumbering were also above the average. The period covered in the survey was from July, 1939 to June, 1940, corresponding very closely to the first year of the war. This period was more favourable for forestry operations than for farming.

"Making forest products an annual crop on farms is something that appeals to a great many farmers in the lumbering counties. The chief difficulty in such a policy would be to secure a more uniform market for forest products than has prevailed in the past. This is not a problem that farmers alone can solve but requires the attention of the whole economy. Such a regularising of lumber operations is essential to regular employment on the farm. Full employment on the other hand might do much to make the demand for lumber more uniform.¹⁷

"A study of the effects of the war on this area makes one point clear. This is the benefits that agriculture derives from industrial activity. This comes about in two ways. One is the absorption of surplus farm labor in industry. The other is the increased demand for farm products that comes about when everyone is busy.

"Postwar problems are now being attacked from the premise of full employment. The war has shown that full employment is a need for agriculture. Therefore the aim must be to prevent as far as possible the unbalance between farming and other industries that brought about unemployment during the pre-war period. It is none too soon to set about studying how this may be done."

One thing is clear; that is that agriculture as an occupation of the Maritime people can only be profitable under two conditions, which are that there shall be a high general level of industrial activity to prevent overcrowding of the farms by surplus labor, and, to afford a healthy domestic market, and second, that farmers grow the sort of crops suitable to Maritime soil and climate. The wartime effects, harmful to one of the traditional

¹⁶ A Survey carried out by Professor Lattimer for the Nova Scotia Economic Advisory Council.

¹⁷ Cf. Chapter 4.

specialized crops - apples - and none too beneficial for the other - potatoes, has in general, however, produced these conditions, so that Maritime agriculture is in a sounder state today, in spite of acute manpower problems in some areas, than at any time in recent history. This improvement, in the words of one expert agronomist, might be the start of a development that would make the Maritimes the "Denmark of America". Denmark like the Maritimes is a country of thin soil of low fertility and its success has lain in its access to a big market, in the skill, good sense and experimental attitude of its people and in a climate especially propitious for stock. The first and last of these attributes are also possessed by the Maritimes, and few natives of these provinces, regarding their history, will doubt the capacity of the people to respond to proper leadership. But if, after the war, there is failure to provide for cheap feeds, if there is a collapse of world trading, if agriculture is regarded as a "reception industry" on any large scale so that surplus labor is dumped back on the farms, the hard won wartime gains may be lost. To become permanent they require on the part of the Maritime people a conscious and sustained effort directed towards improving stocks, agricultural techniques and marketing organization and a national policy designed to prevent industrial depression and unemployment.

STATISTICAL APPENDIX
TO
CHAPTER 6

TABLE I

FARMS OCCUPIED IN MARITIME PROVINCES

		<u>1931</u>	<u>1941</u>
	New Brunswick	34,025	31,838
	Nova Scotia	33,444	33,000
	Prince Edward Island	<u>12,865</u>	<u>12,240</u>
	MARITIMES	<u>80,334</u>	<u>77,078</u>
	<u>COUNTIES</u>	<u>1931</u>	<u>1941</u>
NEW BRUNSWICK	Albert	1,080	854
	Carleton	2,570	2,270
	Charlotte	1,543	1,212
	Gloucester	5,112	5,375*
	Kent	3,088	3,084
	Kings	2,860	2,582
	Madawaska	1,815	1,914*
	Northumberland	3,376	2,309
	Queens	1,628	1,411
	Restigouche	1,800	1,800*
	Saint John	500	429
	Sunbury	745	509
	Victoria	1,447	1,384
	Westmorland	3,716	3,350
York	2,730	2,720	
PRINCE EDWARD ISLAND	Kings	3,403	3,273
	Prince	4,405	4,244
	Queens	4,877	4,723
NOVA SCOTIA	Annapolis	2,158	2,176*
	Antigonish	1,765	1,427
	Cape Breton	2,135	1,704
	" " South	1,131	1,175*
	Colchester	2,685	2,183
	Cumberland	2,808	2,536
	Digby	2,003	1,713
	Guysborough	1,725	1,228
	Halifax	2,702	1,683
	Hants	2,370	2,033
	Inverness	3,027	2,785
	Kings	3,055	2,810
	Lunenburg	3,614	2,802
	Pictou	2,331	2,530
	Queens	1,010	508
	Richmond	1,460	1,245
	Shelburne	350	630
Victoria	1,414	1,081	
Yarmouth	1,742	1,541	

*Indicates increase in census period

Source: 8th Census of Canada
Bulletins 5, 6, 18.

TABLE II

AREA OF FIELD CROPS
MARITIME PROVINCES

	1931			1941		
	P. E. I. acres	N. B.	N. S.	P. E. I.	N. B.	N. S.
All field crops	424,622	953,180	574,729	456,224	853,585	515,856
Wheat (total)	20,032	7,052	2,035	9,048	4,651	2,224
Barley	3,775	9,972	7,833	13,064	16,974	12,674
Oats	146,617	217,920	65,376	125,264	132,854	60,302
Rye (fall)	277	212	148	372	534	368
Rye (spring)	10	45	13	--	15	42
Corn (for husking)	6	24	29	16	43	36
Flax seed	3	27	99	28	215	34
Buckwheat	1,869	4,221	42,676	1,377	17,991	1,476
Beans	16	632	569	16	533	670
Peas (dry)	17	404	58	54	230	80
Mixed or other grains	20,814	1,750	3,683	35,464	2,164	4,735
Cultivated hay	235,022	593,247	420,816	218,353	556,176	335,806
Corn for ensilage or fodder	278	427	516	602	1,143	644
Grain hay	1,435	6,527	7,913	977	5,637	8,091
Other fodder crops	234	6,404	8,955	87	676	906
Potatoes	53,615	60,260	22,664	39,856	43,122	13,489
Turnips & swedes	7,696	8,530	7,263	9,199	6,623	7,805
Mangolds & sugar beets (for food)	535	531	1,196	1,367	1,032	1,343
Other field roots	37	219	234	167	915	637
Tobacco	--	3	--	3	--	--
Other field crops	--	3	1	--	50	4

TABLE III

CENSUS OF LIVE STOCK
MARITIME PROVINCES

PROVINCES & COUNTIES	HORSES		CATTLE		P I G S		SHEEP		POULTRY	
	1938	1941	1938	1941	1938	1941	1938	1941	1938	1941
P.E.I.	29,900	23,115	99,400	94,440	44,200	43,336	43,700	43,077	872,700	840,656
Kings		6,494		19,115		9,717		15,693		162,303
Prince		10,557		34,600		14,122		17,097		337,143
Queens		11,064		40,725		24,497		11,187		341,412
N.B.	52,100	44,961	219,600	205,871	82,200	68,317	110,400	90,257	1,306,500	1,141,703
Albert		1,541		9,395		2,359		1,129		27,874
Carleton		5,511		20,153		6,312		10,717		118,452
Charlotte		1,239		6,051		1,743		1,347		46,017
Gloucester		3,316		14,954		4,726		10,515		95,213
Kent		3,773		16,442		5,832		11,346		95,230
Kings		4,504		29,792		7,946		7,420		135,949
Madawaska		3,005		11,749		5,019		13,932		62,696
Northumberland		2,773		12,361		2,999		5,626		59,922
Queens		2,195		10,442		3,545		2,529		33,566
Restigouche		2,034		8,498		3,222		4,110		32,675
Saint John		494		2,704		931		151		23,657
Sunbury		973		4,513		2,004		675		21,417
Victoria		2,726		8,464		3,186		3,270		47,795
Westmorland		6,056		28,656		6,604		8,010		140,717
York		4,770		21,692		7,347		9,430		136,518

Continued on next page

TABLE III (continued)

CENSUS OF LIVE STOCK
MARITIME PROVINCES

<u>PROVINCES</u> & <u>COUNTIES</u>	<u>HORSES</u>		<u>CATTLE</u>		<u>P I G S</u>		<u>SHEEP</u>		<u>POULTRY</u>	
	<u>1933</u>	<u>1941</u>	<u>1933</u>	<u>1941</u>	<u>1933</u>	<u>1941</u>	<u>1933</u>	<u>1941</u>	<u>1933</u>	<u>1941</u>
N.S.	42,500	36,175	236,100	205,256	43,800	43,044	146,200	137,948	1,255,000	1,129,453
Annapolis		1,037		14,310		3,532		5,736		63,263
Antigonish		2,431		11,321		1,312		13,405		60,340
Cape Breton		1,839		3,835		1,273		6,911		67,176
Colchester		3,347		22,215		3,603		3,323		107,452
Cumberland		4,635		21,133		3,308		3,057		104,264
Digby		300		7,969		1,539		2,441		35,329
Guysborough		989		4,309		763		8,707		19,523
Halifax		1,203		3,411		2,470		3,201		70,063
Hants		2,927		15,837		3,339		4,433		90,038
Inverness		4,530		16,379		2,540		33,666		47,747
Kings		3,829		17,255		6,343		4,712		159,072
Lunenburg		650		14,594		3,334		4,661		36,610
Pictou		4,113		13,653		3,325		12,312		115,904
Queens		172		2,740		551		550		13,563
Richmond		719		4,235		555		9,762		17,266
Shelburne		33		2,033		377		2,077		13,330
Victoria		1,472		5,537		370		3,011		20,232
Yammouth		270		3,011		1,302		1,413		35,919

Source: 9th Census of Canada, Bulletins #24, 27, 29
Canada Year Book, 1939
Quarterly Bulletin of Agricultural Statistics

TABLE IV

PRODUCTION OF FIELD CROPS
PHILIPPINE PROVINCES

Crop	Average 35 - 39			P. E. I.	40		P. E. I.	41	
	I. E. I.	N. B.	N. S.		N. B.	N. S.		N. B.	N. S.
Spring Wheat	243,000	220,000	50,000	233,000	176,000	55,000	235,000	131,000	47,000
	bu.			bu.			bu.		
Oats	4,667,000	6,241,000	3,012,000	4,903,000	6,507,000	3,265,000	3,723,000	6,200,000	3,394,000
Barley	165,000	356,000	243,000	397,000	521,000	351,000	266,000	513,000	340,000
Buckwheat	65,000	651,000	97,000	74,000	537,000	64,000	50,000	437,000	86,000
Mixed Grains	332,000	37,000	136,000	1,505,000	126,000	204,000	1,315,000	204,000	132,000
Beans	-	20,000	-	-	21,000	-	-	20,000	-
Potatoes	3,743,000	4,300,000	1,097,000	4,570,000	6,096,000	2,313,000	2,640,000	5,736,000	2,001,000
	cwt.			cwt.			cwt.		
Turnips	2,605,000	2,632,000	3,253,000	2,542,000	3,340,000	3,511,000	1,620,000	2,021,000	3,300,000
Hay & Clover	310,000	313,000	675,000	344,000	944,000	640,000	360,000	396,000	667,000
	tons			tons			tons		
Fodder Corn	3,000	7,000	6,000	3,000	5,000	6,000	1,000	3,000	6,000

Source: Quarterly Bulletin of Agricultural Statistics

TABLE V

FARM WORKERS
MARITIME PROVINCES

N.B.	Total	54,037
	Family	53,933
N.S.	Total	52,216
	Family	50,993
P.E.I.	Total	20,911
	Family	20,549

Source: 5th Census of Canada, Bulletin #31.

TABLE VI

FARM WAGES
MARITIME PROVINCES

	★ 1933	★★ 1940	★★ 1941	★★ 1942
Canada	\$24.00 (17)	\$41.40	\$51.01	\$64.92
P.E.I.	20.00 (13)	31.00	33.00	47.26
N. S.	25.00 (14)	39.45	50.55	63.64
N. B.	26.00 (15)	43.70	51.96	69.44

★ indicates cash wage without board. Estimated value of board in brackets.
★★ indicates total wage including value of board.

Source: 1933 figures - Canada Year Book, 1939.
Other figures - Quarterly Bulletin of Agricultural Statistics.

TABLE VII

DAIRY PRODUCTION, VOLUME AND VALUE
MARITIME PROVINCES

PROVINCE		1937	1938	1940	1941
N.B.	Milk	\$3,871,000	\$4,293,000	\$3,977,000	\$4,560,000
		380,412,700 lbs.	420,002,300 lbs.	383,322,000 lbs.	377,561,000 lbs.
	Butter	\$2,579,143	\$2,804,900	\$2,394,200	\$3,180,200
		9,883,787 lbs.	11,073,100 lbs.	9,638,000 lbs.	9,763,000 lbs.
	Cheese	\$ 85,668	\$ 76,000	\$ 88,000	\$ 163,500
		602,182 lbs.	544,500 lbs.	633,000 lbs.	768,000 lbs.
N.S.	Milk	\$5,338,000	\$5,717,000	\$5,364,000	\$6,350,000
		489,789,500 lbs.	508,901,600 lbs.	443,948,000 lbs.	466,379,000 lbs.
	Butter	\$3,420,460	\$3,568,900	\$2,982,500	\$4,131,300
		12,329,068 lbs.	13,236,400 lbs.	11,316,000 lbs.	12,401,000 lbs.
	Cheese	\$ 2,000	\$4,000	\$2,000	\$3,000
		20,000 lbs.	30,038 lbs.	20,000 lbs.	20,000 lbs.
P.E.I.	Milk	\$1,263,000	\$1,356,000	\$1,351,000	\$1,758,000
		122,320,700 lbs.	148,587,100 lbs.	138,837,000 lbs.	147,529,000 lbs.
	Butter	\$969,970	\$1,046,600	\$854,800	\$1,277,100
		3,863,508 lbs.	4,059,500 lbs.	3,569,000 lbs.	3,948,000 lbs.
	Cheese	\$64,732	\$62,927	\$97,132	\$135,342
		461,883 lbs.	449,700 lbs.	684,000 lbs.	691,000 lbs.

Source: Canada Year Book 1939
Quarterly Bulletin of Agricultural Statistics

Chapter 7

THE FISHERIES
by
Stewart Bates*Economic Background in 1939.

At the outbreak of the present war, this industry could rightly be described as depressed. The money income derived from catching and processing fish in the shore communities averaged less than \$300 per annum per man, while that of fishermen in larger centres like Halifax and Lunenburg, although averaging \$1,000 on bigger vessels, was still low compared to other trades of comparable skill, risk, and hardship. It will be recognized, however, that it is difficult to speak of average incomes in an industry where "fisherman's luck" is so important a determinant of the size of income. But it should be understood that luck is a relative, not an absolute thing. The poorer the fisherman, or the less efficient his equipment for capturing fish, the more important is luck as a determinant of income. And the more highly capitalized is the fishery, and the better the boats, then the greater is their mobility and catching power; also the greater the capital investment in ships, the more able are they to withstand the vagaries of weather and to maintain greater constancy of fishing operations. Consequently the more highly capitalized a fishery is, the less significant is luck as a determinant of the income of those in the industry. The Maritime fishery income up to the outbreak of this war was more variable than that of the New England fishery, where greater availability of capital allowed the use of techniques that produced more constant returns.

The depressed condition of this industry in the decade preceding this war, attributable to the usual complex causes, could however be said to derive from one basic weakness. The organization and the structure had not proved adaptable to the changes that were taking place in food industries generally, and since these changes had been accelerated after the last war, the Maritime fishery suffered a progressive loss in its competitive position among food industries both at home and abroad. In the salt fish branch of the

* The writer undertook to contribute this chapter while he was at Dalhousie University. His recent connection with the Dominion Department of Fisheries in no way implies that his interpretation of events in the fishing industry, as shown in this chapter, reflects that of the Department.

industry, based mainly on export trade, the difficulties were persistent, and loss was revealed both in terms of the price that could be had in export markets and in terms of the quantities these markets would take. This decline in the profitability of the salt fish trade between the two wars had far-reaching effects, especially on the shore fishermen from Cape Sable to Gaspe.

The shore communities in Eastern Canada had grown to serve an export trade in salted fish. The equipment of these communities, both for killing and for curing fish, was essentially simple and cheap, and formerly had been quite effective for its purposes. After 1930 that equipment of the shore fishermen had not improved, but had rather depreciated because of the poverty of the times. It is true that some districts began to specialize in the more lucrative lobster business and to provide themselves with equipment accordingly, and it is true also that others began to specialize in fish favoured by the North American market, like pickled fish for Gloucester and smelts and sardines. But basically the shores depended greatly on the export trade in ground fish (cod, haddock, hake) for their economic sustenance. And the equipment for capturing these varieties was small in size among the shore communities. Even in the well-known Lunenburg fleet the essential fishing method was small-scale. It is true that they had large vessels costing up to \$45,000, but the method of fishing was by small boat (dories) with two men to a boat, the vessel only serving to give the men more mobility and easier access to more fertile fishing grounds. In the Maritimes fishing depended on men. In New England and on the Canadian Pacific Coast by 1939 the bulk of the fishing was being done by boats with mechanical setting of lines and nets (trawlers and dreggers, seiners, gill-netters, trollers, etc.) the men having become net-minders. Modern fishing methods did not pass by completely in Eastern Canada, but their introduction evoked the so-called "trawler controversy" which, in its frequent recurrences led to political decisions that aimed at keeping as many men as possible attached to the fishery, rather than at strengthening the competitive power of the fishery against the growing modernization of the other food industries with which Maritime fish had to compete. Accordingly, during the depression years, the eastern fishery had tried to turn back history, and had progressively eliminated trawling methods until in 1939 only three trawlers remained. Inflows of such new capital were not encouraged. New capital did, however, enter into the manufacturing processes, even in the salt fish trade, where an innovation in drying methods was made in Lunenburg.

The general lack of modern fishing methods involved some retardation of the fresh fish industry which had been gradually expanded from 1908 onwards. The development of this branch of the industry had natural difficulties to contend with. The Canadian Atlantic fresh fish industry had been limited by the need to transport great distances, it never having enjoyed the propinquity of

large cities as did the New England fresh fish trade. Nor did it possess the abundance of relatively expensive fish like salmon and halibut which allowed the Canadian West Coast fisheries to transport over considerable distances without unduly raising the consumers' prices.

The Maritime fresh fish manufacturers had to sell in central Canada, or the United States, and the American tariff in the last twenty years allowed them to compete effectively in the United States only west of Buffalo, this competition being aided by the help of competitive railway rates from the Canadian railways. With so perishable a food as fish, the above market conditions determined that the development of a fresh fish industry in Eastern Canada depended on its ability to land fish at its shore points in good condition. Since a long rail haul was involved, time had to be saved at the fish capturing end of this business, and this called for modern fishing methods, with proper refrigeration conditions, right from the moment of fish capture through the whole process of manufacturing and transport to the ultimate consumers, the bulk of whom were approximately one thousand miles from the sea.

Equally the development of a fresh fish industry required some constancy in fish supplies so that good quality fish could be moved daily into the markets without the necessity of having further losses of time in storage of the product at any point between the manufacturer and retailer. But to get constancy of supply required modern techniques. It could not be guaranteed by schooners for their dorymen depend very greatly on weather conditions, and the schooner during a year's fresh fishing will sometimes land trips with as low as 3,000 pounds of cod or as high as 150,000 pounds. With schooners, good weather brings high landings when all of them can fish and bad weather brings low landings. In short, the lack of modern fishing equipment emphasized the "feast or famine" conditions so well known in the Maritime fresh fish industry and so contrary to what the well being of the fresh fish industry requires. A successful fresh fishery probably requires daily landings at its shore plants, to ensure freshness, to maintain constancy of plant operations, and to reduce the present high costs of merchandising that derive from the spasmodic flow of fish into central markets, much of which fish is not in prime condition, leading to high spoilage rates and to economic losses. But the Canadian Atlantic fishery entered this war under the compulsion of methods that were essentially pre-1914. The horizon of the fishing industry as a whole was essentially that of the salt fish branch. Salt fish had been the mainstay of shore fishermen throughout the Maritimes and Quebec. The development of a fresh fish industry, with trawling techniques, tended to concentrate fresh fishing operations in certain ports, and under the control of corporations which alone could provide the finances for such operations. The shore fisherman, finding his income from salt fish being reduced by the intensive competition of producers in Norway, Iceland and Newfoundland, looked enviously to the home fresh fish

market and tried, sometimes vainly, to gain access. From 1937 the Province of Quebec attempted to capitalize its nearness to the Montreal market by subsidizing the introduction of shore equipment for freezing and storing fish, and by 1942 it appears as if this operation must be considered successful from the Quebec point of view.

In the Maritimes, however, the shore fishermen were limited by their geographical location which was far from the market. In certain regions like southern Nova Scotia, nearer to the United States markets, and having scallops and lobsters, more success was achieved in entering the North American market. In Eastern Nova Scotia where varieties were limited and access to the market poor, the only possible method of partaking of the home market was by the use of more up-to-date fishing equipment and the introduction of effective shore equipment for fresh fish processing. The potentiality of using small dragger operations by which groups of men in such regions could improve their productivity was dwarfed by the difficulties of capitalization. In New England the use of small wooden draggers, up to sixty feet long, powered by marine engines (not discarded automobile engines) had allowed their fishermen to increase production by using a drag or net on the edge of shore banks. But the purchase of such vessels was beyond the financial capabilities of shore fishermen in Eastern Canada. Faced with these difficulties there was political pressure to try to uphold the status quo in the salt fish industry, a pressure that led to the establishment in 1939 by the Dominion Government of the Salt Fish Board, an organization aimed at assisting the fishermen-producers of salt fish, and meeting from the public treasury the deficits that they were encountering as they tried to sell salt fish in export markets. In these markets competition from foreign producers was acute, prices sagged continuously from 1921 onwards as the native consumers in the West Indies found difficulty in purchasing. Canadian fishermen, faced with low selling prices and high costs, and lacking modern methods of catching and processing fish, required Dominion aid to meet the situation, for by 1939 Canadian salt codfish exports were only one-third of their level of ten years earlier.

War and the Maritime Fisheries.

A student of the Canadian Atlantic fisheries, when reviewing the changes that have occurred up to the end of the third year of the war, is impressed by the fact that the significant events have been crowded into the year 1942. Indeed it might be said, speaking broadly, that the first two years of the war resulted in effects that appeared to be mainly advantageous to the fishing industry: but that as the third year of the war progressed the need for change and adaptation in the industry became increasingly urgent. It could

no longer be presumed that the peace-time organization of the industry was competent to meet the needs.

Individualism had been pronounced in this industry, in the fishermen no less than the processors. The scattered distribution of fishermen along the coasts, and the fact that the fishing operation itself depends on men rather than mechanical methods, both made for a high sense of independence, and lack of any integrated or coordinated scheme of fish production. The processors also reflected this independence. The fresh fish producers lived in evident rivalry despite the growing integration in other food industries with which they had to compete, while the salt fish exporters continued their independent merchanting system regardless of how competitors like Newfoundland had unified their selling agency and had begun to prepare products with national marks and national grades. And this traditional method operated with traditional success in the first two years of war as the industry emerged from depression and approached prosperity. But in the third year of the war the conditions which allowed both individualism and prosperity to move hand in hand began to disappear. The apparently always available pool of labour began to dry up and the fish catching process, depending so much on an abundance of men to handle small boats, began to suffer decline. The shore plants, depending in turn on local pockets of casual labour that could be dipped into at will to meet the highly seasonal and intermittent character of both fresh and salt fish production, reflected the new and completely unusual condition. The assumption that underlay every phase of the Atlantic fishery - plenty of hands - was gradually becoming untenable. And in the salt fish trade in particular the additional problem of finding transportation to the high price markets was calling for some integration of commercial policy, compelling the industry to consider the wisdom of providing its own carriers to the now lucrative West Indian markets. Furthermore, this industry that had competed with "bulk sellers" like Newfoundland and Norway in the depression, now found that in the boom it was being confronted with "bulk purchasers" in certain islands where food shortages were compelling government administrators to unify the food purchases. Isolated, individualistic methods of marketing could no longer withstand this even in the salt fish trade. Accordingly, in the third year of the war the need for new methods of fishing and for some improvement in capitalisation, and the need for some changes in the methods of industrial organization in the fishing industry began to be apparent and to grow increasingly urgent. Writing now at the end of the third year of the war the outside observer sees only the growing emergence of the forces that are inherent in adaptation of an industry to a war of this dimension. The trends of change have only begun in the Canadian Atlantic fishery, and direction is not yet so definite as in industries which have been longer "at war".

The following paragraphs attempt to summarize the main incidents:

Although the first two years of war showed few effects that were significant, some items are worthy of note. The first casualty arose when the United Kingdom banned the import of canned lobster, thereby depriving Canadian exporters of their main market. The Dominion Government provided a scheme of canned lobster control (Order in Council P.C. 1702, P.C. 2521, P.C. 2522, P.C. 2997 and P.C. 2517). A market for this product was found in the United States at satisfactory prices, and the transition from selling in one market to the other may be said to have been effected with little difficulty. Apart from this, the first year of the war had little effect on the other branches of the fisheries. There was some movement to provide increased quantities of frozen fish to England. The salt fish trade, however, still required subsidy according to the recommendations of the Salt Fish Board, the prices to fishermen being very little improved from the depression levels, dried cod only averaging \$5.50 per quintal and mackerel only \$4.00 per barrel to the fishermen.

In the second year of the war the transition to prosperity was fairly rapid in some branches of the industry. The exclusion of Norway and France as competitors, and the readjustment in Iceland from salt fish production to fresh fish production for England, allowed Canada some new freedom in the American and Caribbean markets, a situation that was comparable to that enjoyed in the last war. Throughout the second year of this war, the Canadian salt fish industry made the most of this novel situation of boom, and prices rose rapidly, doubling on average, although some varieties increased more than this. This rise in salt fish prices served to pull up prices in other branches of the fishing industry.

At its opening the third year of the war looked as though it might bring a continuance of general prosperity in the fishery, but expectations have not been wholly justified, and throughout 1942 the industry has encountered increasing difficulties. The fishermen themselves have not yet experienced these difficulties as have the processors. So far as the fishermen are concerned, the 1942 season must appear as an excellent one. Whereas dried cod from the shores averaged only \$4.96 per quintal in 1939, today the price is \$12.00. Pickled cod sold on average at \$2.20 per hundredweight in 1939, but now is \$6.50 per hundredweight. Pickled mackerel was \$4.70 a barrel in 1939, but is now \$12.50 per barrel.¹ Indeed the returns received from the spring and summer fishing in 1942 may have been so high as to permit some fishermen to rest

¹ It will be understood that there is no single price for any kind of fish common to the Maritimes as a whole. There are sometimes quite wide regional disparities and the above figures can only be taken as the most typical kind of average.

themselves from the cold winter fishing in 1942-43 season. These increases in salt fish prices have naturally forced up fresh fish prices, and fish which sold at a cent a pound in 1939 largely average over three cents today, most of these increases having occurred since 1941.

But operators in both the fresh and salt fish trades have faced growing uneasiness, particularly in the salt fish trade where transportation difficulties have been acute. The fresh and frozen fish industry had no comparable transport difficulties, their markets in Canada and the United States being served by rail, and being progressively buoyant. Exports of fresh cod fillets to the United States which had averaged \$6.80 per hundredweight in July, 1939, reached \$15.00 in July, 1942. Since only a few fresh fish products sold in Canada are at present under the price ceiling, the rise in home prices has also been marked. It has not, however, been comparable to the rise in export prices to the United States, and despite the differential between the Canadian and American price, the fresh fish industry has attempted to maintain its traditional proportions of sales in the Canadian market, despite the lower prices there. However, to both Central Canada and the United States sales of fresh and frozen fish have steadily expanded since 1939. The salt fish industry has enjoyed high export prices, but the market situation has been marred in 1942 by the enemy submarine campaign which reduced shipping space and rendered the trade unable to take full advantage of the good markets. Despite attempts made to send fish by rail to the Gulf of Mexico ports for transshipment to West Indian markets, the transportation problem became progressively worse until in the autumn of 1942 salt fish markets were almost paralyzed, and such fish as had been shipped was being so long delayed en route as to increase the dangers of spoilage especially in certain varieties. This condition was forcing the salt fish branch into a search for other methods of transport and they were considering the advisability of using fishing schooners for freighting. The salt fish trade also was being confronted in certain markets by the emergence of monopoly buyers as governments centralized their purchases of food. These commercial changes were compelling salt fish exporters to consider the advisability of forming a more unified selling agency such as had been common to their competitors in the past.

In 1942, therefore, all branches of the industry were feeling the weight of imponderables that seemed to be forcing the fishery into fundamental changes in outlook and methods. And these difficulties were partly inherent in the organization. The industry was particularly prone to the loss of men in any boom, however caused. The fishing industry had a low occupational status, with depressed incomes, with little selective activity, and with much short time work common to it because of seasonal fish migrations. As new occupational opportunities arose elsewhere this industry lost men, and these losses were continuous from 1939, but only in

1942 did the manpower shortage become acute, many of those formerly described (often wrongly) as fishermen having become carpenters, mechanics, labourers, stevedores, etc. Probably the fishing industry as a whole (September, 1942) was about 40% below its normal labour forces.

The shortage of labour in the fish capturing process reflects itself in almost proportional reductions in output, because the capitalization of every branch of the fishery has been low. Capital was hitherto more difficult to get than labour and the fishing technique reflected this condition. Now as men migrate from the industry the capital equipment is not of the sort that can be used more intensively by the remaining labour. The available catching equipment was mainly in small boats, and as men leave the shores, these boats become partially or even totally unused. The better type of equipment, like the schooner, also depends on hand labour for catching, and even in peace-time the Maritimes had to rely largely on Newfoundland fishermen to man these vessels: they, too, are now in short supply. Today in order to maintain fish landings the situation calls for equipment that will use fewer men and more capital, for vessels that would depend not entirely on men fishing by hand but would depend increasingly on vessels with power to drag trawls or long lines. In the spring of 1942 the fall in catch was marked, but during the summer the excellent fishing weather, and probably the greater abundance of fish populations resulting from the cessation of European trawler activity on the Banks since 1940, has helped to maintain the volume of landings. Nevertheless, a change in methods seems to be called for.

The Dominion Government has concerned itself with this supply problem. It has taken steps to allow for the risks encountered by fishermen, in order to prevent this factor acting as a deterrent to the occupation. The individual fisherman is compensated for loss of property due to war (Order in Council P.C. 3358); and he is compensated for loss of life, disability, or detention abroad as are naval servants under the Pensions Act (P.C. 10/4029, 12th June, 1941, and as amended by P.C. 87/5204, 16th July, 1941; also P.C. 12/4209, 12th June, 1941). Later, as enemy activity came close to the Atlantic Coast, the Government provided relief to individual fishermen and cooperatives in event of war damage to their vessels, up to \$2,000 for the boat and \$400 for gear (P.C. 5036, 3rd July, 1942). Larger groups like corporations, it was presumed, could afford to cover this with marine insurance. These steps were intended to delay the exodus from the fishery, but in August, 1942, more positive action was taken to try to maintain or even expand production. Then the Dominion Government introduced a scheme of assistance to the industry for the construction of dragners, and for the conversion of schooners to dragners (Order in Council P.C. 7580). This scheme may have to be expanded and implemented in other ways in order to ensure that shore

fishermen also may be able to use fishing methods that are likely to produce more fish per fisherman. Unfortunately, such schemes must be slow to produce effects, for in 1942 ships are scarcer than men, and even those persons desirous of trying new fishing methods under the assistance scheme may find it almost impossible to gain shipbuilding space, or if given space, may find the purchase of marine engines dependent on the enlargement of manufacturing capacity in central Canada. Furthermore, it is tempting to those persons who might be sympathetic to the introduction of new methods, to delay their innovation until the end of the war when there will probably be a surplus of vessels like mine-sweepers that can be used as trawlers. Consequently, the end of 1942 may see no notable change in fishing methods although such change is urgent. Nevertheless, this year has seen a change in policy towards the encouragement of more productive fishing techniques. There is implied in this changing attitude, a change also in the relative place of the fresh and salt fish trades, respectively, in fishery affairs. It implies that the latter alone cannot hope to dominate the vision of the future in the Canadian Atlantic fishery.

The fish processing plants on shore have also encountered losses of personnel. Again the shortage did not become critical until 1942, and then it was particularly acute in Halifax in the early spring when labour had many alternative jobs, especially stevedoring. But the problem has been common to other regions, indeed in all regions where alternative occupations are present in the same locality as the fish plant. Today the shortage of labour in the plants is perhaps worse than that on the fishing boats, and on average plants have only about sixty per cent of their normal personnel, a condition that is compelling them to work the labour left to them on long stretches of overtime. These plants have been compelled to use scouts to bring in labour from shore communities, to pay the costs of moving new men into the locality, to provide billeting and accommodation, and to pay full wage rates even when the newcomers are relatively inefficient. This search for new labour is continuous and the future appears difficult. With the present irregularity in fish supplies, shore operations tend to be intermittent and this unsteadiness of employment quickly induces the new employees to move away again to any of the occupations where they can be sure of steady work and where perhaps the occupation is more pleasant than that of fish work. And lastly, in so many of these plants the wage rates were those of a depressed industry, and the firms have not been able to make the wage adjustments that were necessary to prevent the exodus of labour into plants working on government contracts. Wages in fish plants would probably have to be increased sixty to one hundred per cent to make them competitive with their occupations in the same communities. The labour withdrawal is continuous and action appears to be necessary now to stop the decline.

In the face of this labour shortage in fresh fish plants, it appears that there is no ready solution to be found by increasing their mechanization. So far as fresh and frozen fish manufacture is concerned, technical knowledge has not yet devised a satisfactory mechanical filleter of fish. The plant is usually a room with chain conveyors and its technical capacity depends on the number of men or women available to stand at the chains and to perform the filleting operations by hand. Capacity of production is primarily a manpower function. In some plants it is true that the general layout may admit of improvements that could increase output per man available, by ensuring that waste motions in the handling of fish from the vessel right through the plant are eliminated, by determining that the new labour may learn the methods of fish cutting that are least wasteful of time and least productive of fatigue, by inspecting lighting systems, height of conveyors, and general conditions of work to minimize fatigue, and by allowing to the firms some freedom in making fitting rewards to those whose output is high in speed and quality. But the latter improvements may be only of the order of, say, ten or twenty per cent, whereas a forty per cent increase is called for even to return to normal conditions, and that is solvable only by increases in the labour personnel.

So far as salt fish production is concerned, the plant labour problem especially in Halifax is even more acute. Overseas shipping facilities are irregular and plants are often called on at short notice to provide cargo in addition to what had been their quota, if it is realized that the vessel still has some space available. But the packing and preparing of salt fish for export is also dependent on hand labour, and a shore labour pool is no longer available from which to draw men to handle sudden peak activities.

These labour shortages cannot be regarded as of only local consequence. The scarcity of protein foods in North America appears to call for an increase rather than a diminution in fish production. And by-products like oil, meal, and glue are also essential. An increase in fish food requires no expenditure on feed as does animal production, nor does it take the time of gestation that an increase in beef output requires. The fish are in the sea, probably in greater numbers than in 1939, and given equipment can be prepared for consumption. Nevertheless Eastern Canadian fish production is declining, and in New England the commandeering of trawlers by the Government has further interfered with the fish food supplies of this continent. Meanwhile, the demand is expanded also by British requirements, but so far (1942) the Canadian Atlantic fisheries have only contracted to supply canned herring to England. And no solution to the labour shortage is to be found by asking for any marked transference of effort from the salt to the fresh fish branch of the industry. The islands of the West Indies are equally short of protein foods, and any reduction of the salt fish made available to

them would probably have to be balanced by an increase in some other protein food from the North American supplies.

The Fishing Industry in Transition?

It has been already suggested that the peace-time organization of the industry was unable to meet the demands of war and that this issue became more apparent towards the close of 1942. The needs of a war of this dimension are far-reaching, and in this one in particular, the protein food requirements, both for the war and the post-war periods, are particularly insistent. The fishery, especially the Western Atlantic fishery, which abounds in supplies and remains relatively free from sea or air attack, is an obvious source of allied protein supply, both for human food and for animal feed. Yet in face of this condition, the Canadian catch of the essential food fishes has not expanded, but is threatened with diminution.

The immediate cause of this situation, the industry itself would point out, is the shortage of men and ships. This truth cannot be gainsaid, but if considered only at its face value its acceptance would hide other important factors in the case. With respect to schooners, the shortage on the Atlantic coast has not occurred as it did on the West coast, by reason of extensive Government requisitioning. The shortage has become more evident as vessel owners sold them abroad, or used them as freighters, or nursed them at anchor when the fishing risks exceeded the return that could be made. Since the deep-sea fishing vessel fleet was not large at the outbreak of the war, and since normal losses occurred, the above actions of private owners meant a loss of the nation's catching power.

With respect to men, the shortage has been even more acute. It occurred as fishermen left to help to man a new navy and army: it increased as many new employments offered themselves. The fishing industry had always been extravagant of men: and so long as labour could be had more readily than capital, it continued to rely on fishing techniques that used abundant man-power. And this was true not only of the vessel fishing by dorymen: it was true also of shore-plants that could neglect the "feast or famine" condition in supplies.² As other employments opened to such men between 1940 and 1942, this convenient labour surplus was lost to the industry. A labour shortage followed, but the degree of that shortage was made to appear very great because the industry had become accustomed to a surplus and had allowed its methods, both in catching and manufacturing, to become adjusted to a plentiful supply of men, at low cost.

² So long as there was an abundance of men around plants, ready to be spotted for work when supplies were good, and released again when they were short.

By 1942 these days had gone: whether they have gone for ever is no doubt a consideration of great urgency to the industry as a whole, both to the men and the firms. In this, as in some other connections, to be mentioned later, the impact of the war on the fishing centres is likely to be more obvious after the European conflict has ceased.

For two reasons, therefore, the industry has not been readily adjustable to increases in demand. It lacked the capturing equipment that could be used more intensively and it depended very greatly on available pools of robust labour that the war turned to other purposes. These traits were scars on the industry, left by its long period of depression. The only two periods recently when fishermen in the Maritimes could be said with some exceptions to have reached a level of income that social reformers would describe as reasonably adequate, were the periods in which great wars had destroyed the fisheries of certain competitors and raised the buying power of certain consumers. Between these periods depression had become endemic in this fishery. There was an almost chronic low income, scarcity of capital, and loss of vision and venture as managements grew older and found it difficult to entice new capital or new ability into the industry. Other industries, faced with similar difficulties, have sometimes organized themselves to try to gain the economies, the pressure-grouping or the monopolies that such combinations may bring. Not so the fishing industry. Its individualism was reinforced by adversity. Furthermore, its long period of difficulty was protracted by two sets of conditions beyond its control. On the one side, its own complexity and diversity of operations made unanimity of opinion or action exceedingly unlikely: it contains within it many products, wide geographical disparities that made for different local problems in different areas. All this made for complexity of view as to what the true nature of its depression really was. There was no simple plan of recovery to which all could subscribe, no single catchword to incite public opinion either inside or outside the industry. On the other side, public opinion in Canada thought little of its fisheries. As natural assets, the fishing grounds off Halifax, Canso and Sydney were rated low while other nations rated them so high as to have some two hundred trawlers working them continuously. The attitude of the public of Canada towards its great sea resources was part cause of the gradual decline of the fishing industry.

On top of this, the effects of the first three years of this war have been added, and the prospects of the industry can hardly be said to have been improved. Its equipment is poorer, on average, and replacements have not been maintained. It has suffered an inflation in costs, especially in the approximate trebling of raw fish prices. As we have mentioned, this rise in fish prices has allowed the fisherman a reasonable income and some chance to rehabilitate himself. But the rise has not been accompanied by any

improvements in technique or processing such as would strengthen the competitive position of the industry when other fishing countries return to win back markets. Some other food industries in Canada improved their techniques and their equipment because of war needs, and they will retain these improvements into the post-war period. The fishing industry will also have to compete with these industries for a place in the human stomach when peace comes. The full incidence of the war on the fisheries, as mentioned before, is likely to come later. The well-wisher to the Atlantic fishery has the further chagrin of noting that as the Canadian consumer finds himself short of the protein foods he normally consumes, there is not sufficient fish of good quality available in Central Canada to build up a consumer preference. The shortage of fish processors in the Maritimes has tended to lower the quality of fish transported and the opportunity to build up consumers' desires looks like being lost to the industry.

The purpose of this paper was not to discuss a long-term policy for the industry: it was merely to point up the most evident impacts that the war had delivered to the Maritime fishery. In 1943 the impact will be greater, because of the growing shortage of food, and there will be a need for greater production (which involves some solution to the problem of shortage of men and ships) and probably also a need for greater controls over the export of fish of all kinds in order to serve the best international distribution of fish. It would be futile to try to indicate what policy in 1943 might be in each of these respects: but that policy will go far to determine the future of the industry, if it is at all a positive policy towards expansion. In this critical stage of the history of the fishery, policy, whatever it happens to be, will be of peculiar significance to the future of the industry.

Chapter 9

EMPLOYMENT AND CAPITAL FORMATION

Section 1. Sources of Data and Method of Estimates.

The problems which we wish to discuss under the title of this chapter may well be regarded as the most immediately important for post-war policy. If public investment on a large scale is to be undertaken, it will be important to know, district by district, what the probable volume of unemployment in private industry is likely to be; if population transfers are to be aided and directed it will be essential to know what areas after the war will be "depletion areas" and what might be natural "reception areas"; even a public housing programme cannot possibly be planned in advance if no one knows where the houses will be needed, where the post-war population will be employed. Thus we have to estimate, as far as we can, which of the new war industries can be converted to peace time uses, to what degree expanded industries will continue to employ at the present level, what the contraction of employment will be, and where it will be, what the expansion of employment in the war-restricted industries will be, and how great, and where the gaps between the two, the net unemployment, will be. So basic are these questions that much of the extensive study of post-war problems of Canada has now been found to depend on proper answers to them. Various official agencies are now said to be combining to provide an accurate and authoritative study similar to what has been done in the United States. This precludes an attempt on our part to duplicate this inquiry in the Maritime region, particularly since many official sources of information were closed to us. Nevertheless, since we had become interested in these problems before the official agencies had undertaken to inquire into them, and since we could not obtain access to data which would have made possible an exact calculation, we did attempt to make certain estimates which we here reproduce, admitting that they are apt to be neither exact nor comprehensive, but claiming that they probably represent fairly correct general magnitudes which should prove of some value in the present lack of anything else.

The Census statistics of 1941 provided some guide to population movements, a guide, however, which suffered from two defects. In the first place it showed population changes over a ten year period, changes which in many cases could not be attributed to the war, or which could not necessarily be supposed to have occurred after 1939. In the second place, many of the more impor-

tant changes in population have taken place since 1941, and of these the Census tells us nothing. Obtaining knowledge of these more recent changes from ration book distribution statistics was not possible for us, though we understand the Dominion Bureau of Statistics hopes to use this method to provide population data for the James and Inter-Departmental Committees on Reconstruction. Ourselves we have been obliged to rely on local estimates of population, notoriously exaggerated, and on figures supplied by the industries of changes in employment. In all cases the Census has been used as a check on optimistic local estimates, and, in any case, we have concentrated attention on employment rather than total population. Employment figures published in the Labour Gazette served also as a check on the figures as reported by private industry, but the Labour Gazette figures are not broken down by districts in a manner suitable to our purpose. We have, thus, been obliged to rely on less comprehensive and accurate estimates, but, as we have said, this does not necessarily invalidate our approximate results.¹

We have been chiefly interested in what might be called primary wartime employment. By this we mean the increase in employment directly due to the wartime stimulus, at the primary stage in the chain of stimuli and responses caused by the war. Thus men and women employed in the armed services, in munitions and ship-building and on direct war orders form this primary war employment. Their demand for consumers' goods and the demand of the wartime industries in which they are engaged for material cause a secondary increment in employment in food production and raw material production and there will be tertiary effects in distribution and transport. Our thesis is the familiar one that the secondary and tertiary employment depend on the primary. [After the war, when, there is no doubt, men and women in the armed services, in munitions and other direct war industries will be thrown out of work, their unemployment, if unrelieved, will cause a decline in all other employment and in the national income.] If, however, new public investment is undertaken on a scale to absorb these people their demands for consumer goods and the demands of the public enterprises for producers' goods will provide a sufficient stimulus to maintain secondary and tertiary employment and the national income at something like their present levels. Thus in our estimates in the Maritime provinces we have tried to classify the wartime expansion of employment as primary or indirect, have asked what will be

¹ Inasmuch as our figures both for employment and capital changes rest on these field investigations we have not provided the usual documentation to this chapter; the general source of information is industry itself, supplemented by local government officials, and checked against Census and Labour Gazette employment data. This general reference may stand for the whole chapter.

the probable amount of unemployment at the cessation of the war at the primary stage, have then asked where that surplus might be most usefully reemployed, and have assumed that the state will undertake public investment of sufficient magnitude to assure this re-employment somewhere, and so maintain secondary employment at its present level. In a word we have assumed that if primary employment is maintained, the secondary will automatically be taken care of, and so we have been interested not in total employment figures, or the total increase in employment, but only in the increases in what we call the primary stage. It is, no doubt, true that in some cases the secondary employment must be of a different nature from what it is at present, but on the whole such changes as occur in the secondary, tertiary and later stages will not seriously affect our estimates.

We should also note that we are thinking in what follows of a comparatively short run employment and population adjustment. In the long run the Maritime provinces have all been areas of emigration and have not retained their natural increase, nor can they be expected to do so in the future if in the post war period there are rapid developments in central and western Canada and the United States. So when we speak of an area as being a post war depletion area we mean that immediately after the war there will be unemployment on a scale too great to allow of local reabsorption; when we speak of a reception area we mean one where, after the war, industrial opportunities for some expansion of employment exist, so that some post war unemployed may be absorbed in that area. We do not mean that such an area necessarily can retain its natural increase indefinitely. That would have to depend on long run factors into which we have made no inquiry.

Section 2. Survey of Employment by Districts.

New Brunswick

A. The Pulp and Paper Towns.

Edmundston, Dalhousie, Bathurst and Campbellton are primarily dependent for employment on the pulp and paper industry. The towns have grown in the intercensus period as shown in the following table:

	1931	1941	rate	rate of growth in previous intercensus period
Edmundston	6,430	7,096	10%	50%
Dalhousie	3,974	4,508	12%	100%
Campbellton	6,505	6,748	4%	20%
Bathurst	3,300	3,554	6%	-1%

Local estimates for Campbellton and Edmundston would give these towns 7,000 and 8,000 respectively in 1943. This growth, however, suggests no extraordinary war time changes. The rate of growth in the previous census period was in every case but Bathurst greater than that between 1931 and 1941. To the extent that these communities are dependent on the pulp and paper industry this was to be expected. The industry has been comparatively a flourishing one, and even during the depression the practice of the industry was not to lay off men but to go on part time. The pick-up of employment after 1936 was similar, the mills ran more days in the year, until by 1941 they were running to capacity. At that rate more machinists and more yard men were needed, but the general increase in employment, that is in numbers of men employed, was not more than 10%. There has followed some slight reduction in mill employment, largely represented by enlistment and transfer of machinists, because the shortage of labour in the woods reduced the cut and hence the scale of mill operations. The mills are now, 1943, at less than capacity. On the assumption that there will be no postwar depression we may reckon that the pulp and paper mills will employ after the war at least as many men as now, and that they will want to increase their employment of machinists. In the woods they will want to increase employment, but this increase will affect the rural rather than the urban population. If there were no unemployment in other industries, these towns might then expect to provide increased employment after the war, but only to a limited extent, perhaps enough to reabsorb the returned men from the district.

There are some lesser industries in these towns some of which are directly engaged in war production. In Campbellton a woodworking plant has added new equipment for box-making and has increased employment by 120 men. Two other plants have increased employment on direct war production by sixty men. In Bathurst a new machine shop with new equipment is employing fifty men. Edmundston has had construction of a military camp which gave employment in 1941.

Reemployment in this area will depend in part on the pickup of the pulp and paper industry, which, if it went to full capacity could increase employment by at most 10% in the mills and rather more than that in the woods. Agriculture and fishing, from which much of the labour supply in wartime occupations all over the Maritimes has been drawn, could not reabsorb this labour without a serious reduction in standards of living. The land is not suitable for any extensive land settlement policy though after the depression the New Brunswick government opened a land colony with some success near Bathurst. The best hope of reemployment in this area is in the forests, with, one hopes, a forest road programme and a forest settlement programme such as we outlined in Chapter 4.

In brief the towns of this area may be just able to reabsorb their returned men and the few from the direct war industries. There has been no great migration to the towns from the surrounding country. The towns cannot be reception areas after the war. The rural areas cannot be reception areas for fishermen or farmers, but for forest workers Madawaska, Gloucester and Kent counties could be designated as a reception area. At present there is probably a grand total of 2500 men in the rural areas engaged in lumbering; this total might be increased by 500 men exclusive of men engaged in construction of forest roads, camps and services. A rural and urban development programme and rehousing programme would increase employment possibilities in this area.

B. The Mouth of the Miramichi.

Chatham and Newcastle have had no direct war industry and have benefited only from the improvement in sawn lumber and from some defense construction. Male labour has migrated from these towns during the war. They have been on balance a wartime depletion area, though girls from the country have come in for jobs in shops and restaurants. After the war, if the demand for lumber is such as we have anticipated in Chapter 4, and if new mills are established in this area it could be a reception area for forest workers on a very small scale. We must remember, however, that for twenty years the industry currently established in these towns has not been able to provide occupations for the natural increase of population. Any new industrial development would probably do no more than provide for the present population and its natural increase. There will also be some flow back to this area from Buctouche to which mill workers have migrated to engage in a direct war industry which will not continue after the war.

C. Moncton.

Moncton increased in population from 1931-41 by about 10% to 22,763. It is locally estimated in 1943 at about 25,000. Moncton is crowded and is definitely a wartime reception area. The increase in population, however, is due not so much to wartime industry as to the wives and dependents of personnel in the armed services and to the increase in catering to the needs and pleasures of a large body of men. After the war these men and their wives and families will disperse to their original homes, and many of the girls in restaurants, soda fountains and motion picture houses will marry. Actual wartime employment in Moncton was chiefly in construction; most of which is now over and the labour absorbed in other war enterprises elsewhere. The big war industry of Moncton is railway transport and that, though it has increased employment since the war, is suffering acutely from labour shortage. If the programme of the Canadian National Railways as submitted to the James Committee on Reconstruction is implemented it will mean increased rather than

diminished transport employment after the war. Present employment of the C.N.R. in the Atlantic Region as contrasted with employment in September 1939 may be summarised as follows:

	<u>Sept. 1939</u>	<u>May 1943</u>
Atlantic Region, all Departments	1177	1926
Moncton, all Departments	656	1177

Capital works and improvements aggregating \$7,500,000 have been undertaken in the region during the war and these have afforded a demand for labour in a period of labour shortage. These works have been the minimum necessary to maintain the road in a condition suitable to the vast volume of traffic it has to handle. Though there will be a reduction in employment in the motive department and train crews after the war the railway will be able to maintain the present level of employment in all departments and, if government assists the company to carry through some of its "marginal" schemes there will be an actual increase of employment. (We refer here to direct employment by the railway and not to the further employment that would be afforded in such industries as steel).

Moncton, moreover, is a natural airways centre and so the wartime development of airfields there will be of permanent value. If the expected great development of air transport occurs after the war Moncton may well expect to be an important air terminus and junction, to possess repair and servicing shops and to gain the other benefits of an important terminus.

There is finally the possibility of the commercial development of oil shale in this district. As a wartime project this has much to commend it. Whether or not it could continue to afford employment after the war is a question we cannot answer. New processes have reduced the cost of extraction, but there would have to be a high continuing demand for oil products to enable shale areas to compete commercially with well-tapped liquid deposits.

Thus Moncton may well be a reception, not a depletion area after the war. Moreover it is likely to be one of the Maritime towns which will benefit most from a governmental development scheme, which is certain to stress among other things, improvements in rail and air transport. It is, of course, impossible to estimate the actual population absorption of which Moncton would be capable, that would depend entirely on the extent of government and railway expenditures. But that it will be a postwar reception area we may confidently expect, allowing, however, for population depletion of the sort we have explained, namely the migration of numbers of temporary residents who are there in connection with the Air Force personnel.

D. The Kennebecasis Valley

In this farming area there has been great depletion to war industry and the armed services, so great that some farmers are concerned at the effect of labour shortage on the dairy herds. At one time the migration was to Sussex where the construction of a large military camp was attracting unskilled labour in great quantities. That labour has since been dispersed, but little of it returned to the farms. After the war there could be some assimilation of labour by agriculture in this area, but not, in all probability to prewar levels.

E. Saint John

Saint John is a wartime population reception area. The 1941 population had increased by 4,000 to 51,741. This was in no way a marked increase, but it is probable that in the past two years an increase of like amount has occurred. There is a large concentration of fortress troops who require accommodation and service and the port is continually busy. Dockworkers have not increased in number, but employment is more regular and is constant throughout the year. In midsummer 1943 there was an estimated shortage of 800 workers for general dockside labour. Thus the cessation of the wartime stimulus will probably affect the regularity of employment and earnings of longshoremen rather than lead to a reduction of men on payroll. In direct war industries in Saint John there is considerable wartime employment. This amounts in sum to 2700 men and there are probably as many more Saint John men and women in the armed forces. Thus after the war, in addition to the decline in employment in those services now necessary for the accommodation and entertainment of troops, Saint John will face the problem of absorbing something like 5500 persons in employment. Some of these will be women and may not continue to seek employment. Others are Acadian workers from the "North Shore" of New Brunswick and are probably temporary residents in Saint John. Some of the men and women in the armed services will not return. But at least there will be a labour surplus of 3,000 or more. There is little likelihood that private enterprise in Saint John can absorb this number, or anything like it. On the contrary, if nothing is done to find employment for these men, there will be further unemployment of a secondary nature in trade and other services. Saint John then must be regarded as a postwar depletion area. The degree of depletion will depend on the extent of government employment projects to give employment in the Saint John area.

F. St. George, St. Stephen and St. Andrews.

These towns depend on fishing, fishpacking, lumber, textiles and the tourist trade. As such the only direct war stimulus has been in lumber and, to some extent in textiles. There is little direct

war employment in the area - about 150 men in St. Andrews - and so there will be a small problem of postwar unemployment. The area, however, has no industrial possibilities to suggest it might be an important reception area unless as a postwar scheme the Canadian development of Passamoquoddy power was undertaken. There are adequate timber resources in Charlotte county to support forest industries if cheap power were developed. For that matter, power from a project such as Passamoquoddy could be distributed anywhere in the province.

G. Fredericton and the Central Saint John River Valley.

Fredericton's population increased most rapidly of any New Brunswick town in the inter-census period, 1931-41, from 8,830 to 10,062, a rate of more than 12%. This is not an industrial centre and the industries there are not expanding industries. The increase in population was largely attributable to the expansion of employment in government departments. The growth in government services, anticipated after the war, may make possible a considerable expansion of employment in the town. The surrounding agricultural area, and the potato areas of Carleton and Victoria counties, cannot be reception areas after the war. The better land is well taken up and further crowding of the farm population would only have the effect we observed in Chapter 6 of reducing the per capita farm income. There is little direct war employment here, and the area can probably reabsorb its returned men. We should hesitate to regard it either as a postwar reception or depletion area.

Nova Scotia: A. Amherst and Sackville.

We group the Sackville area of New Brunswick with Amherst, to which there has been a large wartime migration from southeastern New Brunswick. The Sackville industries themselves should be able to retain their wartime employment after the war. But in Amherst there will probably be a reduction of employment of about 2500, or even more, depending on whether any peace activity at all is continued in the war industry now established there. Many of these employees will be women who may not seek further employment, some can be reabsorbed in the agricultural area around Sackville; few if any, can be taken by other Amherst manufacturing industries. Thus Amherst will be a population depletion area, the extent of depletion depending on employment opportunities created there by government projects. Its population in 1941 was 8,620, in 1943 it is probably 11,000. We should expect it to decline at least to the 1941 level. Federal housing programmes for the postwar period should be integrated with permanent programmes providing employment. To build permanent houses for Amherst's present population and to clear out its sub-standard housing would probably give employment to all who needed it, would keep the population at 11,000 until the houses were built. But when the houses were finished many would not be used, for the population would then dwindle. A housing programme,

by itself, is most inadequate as a postwar employment project and is only worth while if integrated with other schemes so that houses will be built in areas where permanent occupations exist and where people are going to live.

B. Truro.

Truro early felt its full war stimulus and the census figures in 1941 probably reflect the effects in Truro's population of Debert camp. The town then had 10,272 people as compared with 7,901 in 1931, and its growth since has been less rapid. Industry and trade in Truro have been vastly stimulated but there is little of what we have called direct war employment. As in the case of Moncton we should expect a dispersal of wives and dependents of men in the armed forces, a consequent diminution of employment in trade and services, largely offset by a reduction of women in the labour market, and consequently a small problem of reabsorption. Truro may be, in that sense, a depletion area, but once the non-permanent residents are gone, it is unlikely that there will be much further depletion. There might be some slight absorption in the agricultural districts around Truro. Once again we should warn against expecting the country areas to supply surplus labour in times of industrial expansion and then to absorb it at a cost of reduced incomes when industry no longer needs it. The Truro area has been selected as one of the areas for special study by the Interdepartmental and James Committees. It does not appear to have been too happy a selection for it is not an area representative of wartime industrial expansion.

C. New Glasgow, Trenton, Pictou.

In these towns the amount of primary employment, the increase in employment in direct war industries, has been over 4,000. This is about equally divided between shipbuilding and steel. In the shipbuilding industry we saw, in Chapter 5, that there was little reason to believe that the Pictou yards would continue after the war. The probable cessation of shipbuilding here would thus throw about 2,000 men on the labour market. This labour force is constituted largely of immigrants from as far afield as Montreal Island, from all parts of New Brunswick and Nova Scotia and Prince Edward Island. Many of the workers will be anxious to return to their home communities. But about half come from the district, many from rural areas, others from the towns of Pictou, Stellarton, New Glasgow, and Trenton.

The steel works of New Glasgow and Trenton have had their capital plant nearly doubled. Of the new capital one-sixth will be quite worthless except for scrap after the war. About one-half of the remainder may or may not be adaptable to peacetime uses, the other half represents a real modernisation and improvement in plant, giving the industry some of the most modern machinery in Canada.

If railroads, replacement and reequipment and other construction after the war are not less than the estimate we made in Chapter 5, the actual diminution in employment in the two steelworks would be only 500-1000 men; probably, since some of the new plant is labour-replacing, nearer the latter than the former figure. Thus, allowing for the return of temporary residents to their home communities and for the effects on the steel trades of railway construction spending this area would have a probable postwar unemployment of 1500-2000 men, not counting the possible reduction of employment in the mines, secondary unemployment and returned soldiers. Even if there were government spending projects in the area it would seem as though the area would have to be a depletion area, one from which population transfer would have to be attempted. Some absorption in industry based on the Cumberland forests might be attempted but that would be small and scarcely likely to appeal to steel workers and mechanics.

D. Industrial Cape Breton.

The increment in employment in heavy industry in Cape Breton of the primary sort has been about 2500 men. Of this total only about half will be unemployed if our expectations of steel demand are not too optimistic and if the new plant and equipment at Sydney are fully used. To this total must, however, be added returned men and the steady natural increase in the coal areas which the mines cannot absorb. Indeed we might expect a considerable increase in the numbers of men who cannot obtain employment in the mines. Population transfer from this district might be difficult in view of the strong cultural autonomy of the people. In our opinion the time has come for a bold policy of industrial development and social welfare development in Cape Breton. Government reconstruction might well consider this area as an experimental one for the development of new industry perhaps along the lines suggested in Chapter 5, and for rehousing, both urban and rural, on a large scale.

E. The Annapolis Valley.

This, on balance, has been a wartime depletion area because of the great reduction in horticulture. But many of the small market towns have been very busy from the stimuli of troop concentrations and the demand for the products of small mills. Like similar areas along the Saint John and Kennebecasis rivers in New Brunswick this area will probably not have a serious employment problem after the war, but cannot be a reception area. The construction of the new naval training centre, which will be maintained in peace time, will have some permanent effect, but as an employment stimulus it will not be great when construction is completed.

F. The South Coast.

The general tendency in fishing, as we have seen in Chapter 7 has been to reduce employment, though some of the displaced fishermen have been absorbed in fish-handling, curing or packing. The war has had the effect of enticing fishermen into the naval and merchant services and into more profitable employment in the towns. The villages have been depletion areas, but some of the towns have received population. Liverpool, Bridgewater, Shelburne, Mahone Bay and Lunenburg all have plants engaged in boat and barge building and repair and in total have a primary employment increment of nearly 1,400 men. There cannot be much optimism about the future of the industries in which these men are engaged, nor can fishing absorb them as well as returned fishermen from the armed services. Pulp and paper and other forest industries may expand in this area so as to offer some employment, but on the whole the area will be a post war depletion area. It must be remembered that before the war this was an area almost static in population. Even the towns had little if any growth, apart from the pulp town of Liverpool, and Mahone Bay actually lost population between 1931 and 1941. It is probable that after the war the same process will be continued, even accelerated.

G. Halifax.

About Halifax there is, strangely enough, little to say, because it is impossible to form any estimate either of the increase in employment, to classify the increase, or to predict port activity after the war. The population of Halifax increased (1931-1941) from 59,275 to 70,438 and in 1943, including Dartmouth but excluding Service personnel, the population of "Greater Halifax" cannot be much short of 100,000 of whom perhaps 85,000 are in Halifax itself. This increase is made up of the following classes:

- (a) Dock, port and transport workers and their families
- (b) Direct war-workers in industry
- (c) Dependents and families of men in the armed and administrative services
- (d) Girls and other workers in trade and services such as shops, restaurants, laundries, etc.

In a sense in Halifax all of these are directly dependent on war activity and when the war is over they will gradually leave Halifax. Our impression is that there will be a very gradual, hence not too difficult, reduction of Service personnel and dependents, as demobilisation goes forward. Throughout the demobilisation period a large staff would have to be kept in Halifax. The same need would exist for dockworkers for there would be a period of postwar activity in the port, shipping foods and construction materials to Europe and bringing back Canadian troops and equipment from European theatres

of war. Moreover the increase in dock labour has come partly from the decasualisation of labour and more regular employment. The actual number of displaced workers will be small and the displacement will be over a sufficiently long period to make gradual re-absorption possible.

In direct war industry of the munitions type the increase in Halifax has been comparatively small, perhaps 1,000 men. These again, mostly engaged in shipbuilding and repair, will not be thrown immediately on the labour market. The most serious problem will be in trade and services. This may become as much a sociological problem as an economic one, as many of these employees are young women who will be thrown out of work amidst the excitements of demobilisation in a busy port.

On the whole Halifax will be a population depletion area, but it will be one from which the big depletion will take the form of a gradual return of purely temporary residents to their former homes. A slum clearance programme, badly needed in any case, would probably be adequate to meet the immediate post war employment requirements of Halifax. In the long run port developments or a harbour bridge might be usefully undertaken as a permanent addition to the facilities of port and town and as an employment project.

Prince Edward Island.

The agricultural economy of Prince Edward Island is not subject to the same sort of employment problem either during or after war as the industrialised areas of the other provinces. How great the wartime drain from Prince Edward Island has been we do not know. The 1941 Census figures show an increase in population from 88,038 to 95,047 in the inter-census period. Of this increase the rural increase was 3,000, the increase in Charlottetown was 2,500, and the balance, about 1,500, in the other towns. This increase, which is the first shown in rural population since the Census of 1881, is accounted for by the depression which, by reducing industrial employment, increased the numbers on the land. Since 1941 there has probably been a reduction in the rural population of Prince Edward Island. There are few industrial opportunities on the Island and war construction, which for a time absorbed labour from the farms, did not afford permanent employment. After the war it would be undesirable to crowd the farm land, so that we should expect Prince Edward Island to remain at a static rural population, with a modest growth in the towns, and with the natural increase draining off to other areas. This means that Prince Edward Island will not be a reception area after the war; but that there will be any sudden increase in emigration seems unlikely.

We may summarise our estimates of probable post war depletion and reception areas as follows:

SUMMARY OF POST WAR EMPLOYMENT OPPORTUNITIES AND CLASSIFICATION OF
POPULATION AREAS WITHIN THE MARITIME PROVINCES

Area	Wartime Classification	Postwar classification	Probable Magnitude of primary unemployment (D) or new employment (R)	Possibility of Employment Project or Population Transfer
<u>N.B.</u>				
A	Depletion	Reception	R 500-1000	Forest project
B	Depletion	Depletion	D very small	if Forest projects developed
C	Reception	Reception*	R200-500	Rail and Air Transport
D	Depletion	Static		
E	Reception	Depletion	D 3000	Port development, Housing, Population Transfer
F	Depletion	Static		Might develop Forest Resource, Water power
G	Reception	Reception	very small	
<u>N.S.</u>				
A	Reception	Depletion	D 1500-2000#	Population Transfer
B	Reception	No great change*		
C	Reception	Depletion	D 2000 or more#	Population Transfer, Forest Projects
D	Reception	Depletion	D 1000 or more#	Industrial Development, Population Transfer, Forest Resource
E	Depletion	Static		
F	Depletion	Depletion	D 1000#	Population Transfer, Development of Forest Resource
G	Reception	Depletion	D 1000, from war industries only; does not include temporary residents, returned men or unemployment in trade and services.	Port Development, Harbour Bridge, Housing and slum clearance; some Population Transfer

P.E.I. Depletion Static

Notes: * After temporary residents have gone

Does not include returned men from the Armed Services

Chapter 9

ECONOMIC EFFECTS OF THE WAR IN THEIR SOCIAL
AND POLITICAL APPLICATIONSSection 1. Some Social Effects.

The title to this Section may be somewhat misleading for we are in no position to survey the sociological changes in Maritime life brought about by the war. We are concerned, rather, with the type of social problem that may arise from the economic changes we have studied. Such speculation requires a classification of the economic changes. Important social modifications may flow from changes in income and income distribution, from changes in occupation, including the change from housewife to wage earner, and from changes in milieu, as from the rural to urban community, from social contact with people of similar to dissimilar background, etc. The sociologist would have many more questions to ask and would want direct data. We are content to see simply the outline of the chief social problems that may be inferred from our economic data.

The war, we have seen, has greatly increased the total regional income and with that the per capita income. We have seen further that it has changed the distribution of that income. The social distribution - that is the distribution among social classes - has altered the balance favourably to the working class. Though wages have been fixed by order-in-council at a maximum level, there were large upward adjustments prior to the fixing of the wage ceiling and even since that time wage changes have occurred, sometimes by permission of the Regional War Labour Board and sometimes by promotions. The big increases came in 1940, when our figures (see Chapter 2 and the Statistical Appendix to Chapter 3) indicate they were of a magnitude of 25% to 30% in manufacturing. Annual earnings increased by much more than the increase in wage rates because many who had been employed at part time went on full time work. But the statistics of wage increases only tell part of what happened. The great number of wholly and partly unemployed unskilled workers who got regular work, the number of men from farms and lumber woods who previously had been getting a mere living, if that, and who often had been seriously depressing the per capita income level of the farm, who now came into the towns to take government construction jobs at wages far in excess of anything that could be got in agriculture or forestry, the numbers of girls and women who found work at fair or good pay and who thus added to the family income, these are not re-

vealed in the statistics. Yet the effect of all this was not only to increase the incomes of those who thus obtained new or better paid work, but also to increase the incomes of their families, removing as they did, one or more members from the farm family, and leaving those behind to divide the full farm income among a smaller number. At the other end of the income scale, though profits and investment incomes and salaries have all gone up, wartime taxation has probably either prevented any total increase in this division of the social income or has actually forced some slight overall decrease.

For a period, before wartime scarcities seriously affected the stocks of goods available in the shops, this meant that the poorer folk were able to reequip their homes, and to enjoy a level of living much above any previous level. It also reduced the pronounced disparity between the acute suffering and poverty of the low income classes of the Maritimes and the comfort of the well-to-do classes. The social welfare agencies of Saint John and Halifax both report a marked change in the type of social problem they are asked to cope with. Prior to the war the typical case, whether of juvenile delinquency or of family difficulties was a poverty case. The families requiring the help of social agencies were destitute and their problems arose from their poverty. Today the typical case is of a different nature and the representative families requiring assistance are not destitute. In wartime cases arise where the separation of husband and wife creates problems for both parties, where the economic independence of the mother leads to a sort of domestic rebellion in cases where the husband fails to accept the new situation and where children have got out of hand in the absence of paternal, sometimes maternal, authority. There is more drunkenness, more drifting apart of families, more licence, more problems of sexual behaviour, but less malnutrition and the wretched domestic concomitants of poverty.

The working classes have more organisation, though trades unionism has gained less ground in the Maritimes than elsewhere in wartime Canada, and have a stronger sense of their function and position. It has been made obvious how the country depends on them and their work, and they have learned something of their strength. Moreover higher incomes have meant for them not just more spending, not simply a brief period of "high living" - if it can be called "high" - but a development of skills and of a sense of responsibility. In the armed services, in the technical training schools and in industry itself, men and women have been trained to new skills. Canada will have a higher proportion than ever before of highly skilled and skilled workers. This process has its profound economic significance in that it increases the productive potential of the economy. It has also a social significance, for with an increase in skills develop ambitions, knowledge of the world, a sense both of social responsibility and also of rights, of what society owes the worker. It would require a fascist revolution to force on the workers the type of misery

that they knew in the prewar and depression days.

Farm incomes, too, have been raised, partly by improved cash incomes, partly, as we saw, by the relief of the pressure of farm population on available tillage. Only in certain districts has the migration of labour been detrimental in the sense that it has been so great as to endanger agriculture. For the most part it has improved the level of welfare on the farms. Thus the farmers, too, have gained in income level. But after the war, if there is some return to the land, it may be that there will be problems of adjustment. Boys who have been in the army or had jobs in war industries and girls who have been in the city will demand more in the way of recreation; they may insist on better rural housing; on improvements in rural education; they may bring back skills that will improve the mechanization of agriculture. These possibilities, which one may anticipate as full of promise for Maritime agriculture and rural life cannot be realized if leadership and official assistance is not offered the progressive forces, and they will become impossible if the movement back to the land is allowed to become like that of depression, an escape to a "subsistence acre" by the industrial unemployed. Sound agriculture and a good life for the people of rural communities is possible only if there is healthy industrial activity.

The shift to the towns has created the wartime problem of housing and adequate municipal services. Wartime Housing has built units in Halifax, Pictou, New Glasgow, Sydney, Moncton and Saint John, and in the latter town there has been some municipal rehousing. The temporary dwellings will rapidly deteriorate into new slum areas if permanent housing developments are not planned to accommodate the urban population. Moreover both Halifax and Saint John have indescribable slum conditions of long standing which have been aggravated by wartime crowding. The municipal services, with some praiseworthy exceptions, are scant and poor. Medical care, public health services, education, care of the poor, municipal planning and development, urban transportation in places like Halifax and Saint John, garbage collection, town cleanliness, organised recreational facilities all are poorly provided for in Maritime towns. There may be a demand for improvement, and there will likely be the opportunity. The mingling of peoples from different parts of the Dominion, which has reduced the cultural isolation of the Maritimes, has made the people aware of their urban possibilities. The economic motive is provided in the profits of the tourist trade and a sense for a better life may lead to the growth of community centres, local theatres and gymnasias, better schools and finer, better kept towns.

But if Maritime towns have bad slums and fail to offer opportunities to their citizens for enjoyment and ease of life comparable with those of other parts of the continent, the conditions of the countryside are very much worse. Here are found the most indescribable conditions of life. Crowded, stuffy, illmade, unventilated two and three room houses, drafty and stuffy in winter, swarming with flies

in summer, dirty, unpainted and ill-kept, are only too often what are thought of as home by children to whom the schoolhouse, a barren one-room shack, is a kind of prison that offers no escape or hope of escape. There is no beauty or promise in these lives; bred on a hard and difficult soil, neglect has left them to endure without hope of alleviation a bare and ugly existence, lacking not only the minor amenities but even the simpler delights possible to a contented people not ground down by poverty and the struggle to survive. One Maritime politician said, "our people live apart, in a sense, from the life of this continent. They do not have to have automobiles, radios, vacuum cleaners and washing machines, telephones and moving picture houses around the corner. They are neighbourly people who like to visit and talk. They can enjoy their country and their work in it. But we have since the depression sunk below the level that they can enjoy even such pleasures. They are too poor. They can't keep up their village church. They can't send their children to school because they haven't boots or clothes to dress them in. They can't have the neighbours in to visit and they are too proud to go out. That is what the depression did to us; and what we must demand, after the war, is not a standard of living on some arithmetic basis equal to that of the industrialised centres of great population, but a minimum on which our people can live with decency and enjoyment".

That minimum may now be demanded by people who have learned what they want. It will include at least housing, education, and preventative medicine for the rural areas. As we have seen, however, it will not be possible to improve the standard of welfare of the rural areas if population is dumped back there from wartime industry. A problem of directing and controlling population transfers becomes, consequently, one of the first of the postwar social problems. Workers, of course, may just be left to migrate to the areas of higher wages, but it seems unlikely that this laissez-faire policy could be adopted in a country like Canada after this war. Yet if workers are assisted in moving from a "depletion" to a "reception" area it is not enough to guide the workers to new jobs and assist them with travelling expenses. The workers and their families must be guided in adjusting themselves to the new community; they may need help with expenses of setting up a new home. Closely knit groups like the people of Cape Breton might well be moved together to protect the very real values of their autonomous culture. They have their own games, their own churches, their own ways of community recreation. A single Cape Breton family transported to Montreal is deprived of its songs and its games and, in some cases, even of its traditional way and language of worship, as well as having its family ties and friendships broken. These are not unimportant things. Yet if fifteen Cape Breton families are moved together, they can still, at least, play rugger and might even play an evangelical role in a continent where the vast majority, presumably because they have never seen or played anything else,

appear to enjoy a game which consists of a series of conferences interspersed by occasional bits of bad-tempered shoving.

The communities that are left also require assistance. With services developed for a larger population, with, probably, municipal and other institutional indebtedness, such as church mortgages, grown to the scale of a larger population, heavy burdens may be thrown upon them, particularly if the younger and more productive men are those who migrate. These communities stand in danger of becoming derelict and decayed, of gradually sinking more and more into economic stagnation and dependence. If they cannot offer employment opportunities now to some of their citizens they ought not to be left permanently in the state of having all their most active and vigorous citizens drained off generation by generation just as they reach the productive age.

But the provision of new employment opportunities, the industrial development of the Maritime region, the economic policies of provinces and of Dominion are political processes. The war has brought comparative economic wellbeing of a sort to the masses of the Maritime people. It has created some social problems and the aftermath will create more. Yet the central problem will remain the economic one. Can employment and the standard of welfare be kept at the present level, or improved? Have we learned from the tragic experiences of depression and war the secret of maintaining a decent standard of life for the mass of our people, or must we return to the mean and narrow life that we previously knew, accepting this temporary alleviation as a small and incidental credit item to write against the vast debits of war?

Section 2. Economic Effects of the War and Policy

The question which we set at the end of the previous section affords the *raison d'être* of this book, yet, paradoxically it cannot here be answered. Clearly, as we said in our introductory chapter, the purpose of work such as this must be to assemble and interpret the factual data as far as possible in order to throw light on the questions: "What will be the nature of the postwar problems the people of the Maritimes will have to face?" and "What policies ought the people of the Maritimes to pursue in order to maintain and improve their standard of living and to avoid relapse into economic depression and regional stagnation?" But we cannot give the answer to the questions, for those answers must be made by the people themselves. This country is at war - our young men are fighting - to retain the right of the people to decide policy. The function of the social scientist is not to dictate or even to advocate the policies that should be adopted or the social ends people wish to pursue, though as a citizen he naturally takes his

part in the formulation of social decision. It is the people of Canada who will decide what policies if any will be adopted to bring social security to all parts of the Federation, the people of the Maritimes who will decide on their policies as a part of the Canadian Confederation. All that we may properly do in conclusion is to throw out in as sharp a delineation as possible the way the economic changes of wartime affect the political position and problems of the Maritime provinces. We may, so to speak, define the areas of decision. We can neither predict nor try to dictate the nature of the social decision itself.

There are three areas, to use this phrase, of social decision, three types of political choices that the people of the Maritimes have to make, three lines of policy to be formulated. These three areas are, first, that in which all citizens of Canada as Canadian citizens regardless of province or region must unite, in deciding the sort of economic policy to be adopted to prevent depression and exploitation and to maintain full employment and the highest development of the national income. The second area has to do with the relation of the Maritimes to the Dominion. Here citizens of the Maritimes have to decide on whether they wish to retain in their own hands the greatest possible degree of provincial autonomy, or whether they wish to join, for certain economic purposes, in a closer union with extended authority in Ottawa. The third area is that of purely local action, that of formulation of policies by the provinces themselves to make the most of their resources and to provide the widest possible opportunities for their people.

The theory of control of employment which seems to have gained the widest popular acceptance is that associated with the names of Lord Keynes and Professor Hansen. According to this theory "fluctuations in the capital goods industries are the primary feature and cause of the cycle of general economic activity; the effects of fluctuations on the capital goods industries are, of course, inevitably felt in the consumer goods industries in as much as the demand of, say, steel workers for clothes and tobacco is reduced once they are unemployed. These primary investment fluctuations are due mainly to the more or less periodic exhaustion of profitable outlets for investment. As the accumulation of capital proceeds the prospective yield of additional investment tends to fall, since each additional unit has to compete with capital already in existence... When the prospective rate of profit falls in relation to the rate of interest, investment is itself reduced, and does not revive until the obsolescence of the capital in existence restores the prospective yield of new investment".¹

¹ J.M.Keynes: "General Theory of Employment, Interest and Money" (London, 1936) p. 219.

An original act of investment, say the building of a new factory to make hats, will give new employment and the men so employed will buy more shoes, clothes and radios, so that production and perhaps investment and employment will be increased in those other consumer goods industries. Thus the employment of bricklayers, steelworkers, lumbermen and carpenters stimulates further employment. But this continual snowball effect of new investment cannot go on indefinitely. More shoe factories, hat factories and machinery for making shoes and hats would only be profitable in competition with the factories and machinery already so engaged if people went on spending a proportionately increasing share of their income on shoes and hats. This is possible in a country with a continuously growing population, where new heads and feet to clothe are continuously appearing. But in a country with a relatively stable or slowgrowing population this does not happen. After we have bought a certain minimum of hats and shoes, increases in our income are given over more and more to savings. Thus the period of the boom, the period of expanding income, contains its own limits, because it creates more capital to produce more goods which must be sold in a market where proportionately smaller and smaller portions of income will be spent. Expectations of profit must decline and prudent business managers must hesitate to make new investments. When the rate of new investment falls the men employed in building factories, in making machinery, in brickmaking, structural steel, lumber and woodworking lose their jobs or go on part-time. Their spending declines and so there is a decline in the demand for hats and shoes, and, thus, in their turn, the workers in the consumer goods industries lose their jobs. This theory suggests that the crucial point is the rate of investment which can only be maintained if the income that would be saved as incomes increase is transferred from those who would save to those who spend and if investment in the critical period is undertaken by an agency not interested primarily in profit. The state is the only authority that can force the transfer of purchasing power from the surpluses of the upper incomes into the hands of the lower income holders, and it is the agency that can afford to undertake investment not directed to profit. Thus, in the view we are here considering, the solution of the problem of the trade cycle and the maintenance of full employment, requires a heavy public investment programme coupled with steeply graduated income taxation on the part of the state. How heavy this public investment would need to be we can only learn from trial and error, but estimates that have been made may give the approximate magnitude. In Britain Mr. Colin Clark estimates that all investment, both public and private, in 1929 was about 8% of the national income. To obtain full employment it should have been 12%, or about £600,000,000 instead of about £400,000,000.² A slightly higher percentage is reckoned as

² Colin Clark, "National Income and Outlay" (London, 1936). See also J.R.Hicks. "The Social Framework" (London, 1942).

necessary for the United States by Professor Hansen.³ In Canada this would probably mean, in terms of 1937 dollars an increase in new net investment from \$300,000,000 to \$450,000,000. But these peacetime figures are slightly deceptive. In wartime we have greatly expanded our national income and our employable population. Many women may wish to remain on the employment market. To give full employment in Canada at a national income level of \$8,000,000,000, 1943 dollars, would probably require new net investment of \$900,000,000 annually of which, say \$500,000,000 would have to be public investment. Immediately after the war the figure would need to be much higher in order to replace wornout capital and to give quick employment to the thousands of workers transferring from the armed services and the war industries. The experts of the James Committee appear to be working on an estimate of \$1,000,000,000 as the necessary amount of public investment in the first postwar years, a sum in addition to the increased cost of the public debt and of the new social services. This would give a Canadian budget of \$2,250,000,000 in the immediate postwar years. Some ask how such a burden can be carried, and ask if the state will not go bankrupt under such a load. These forget that the state is unlike a private individual. What the state owes, it owes to its citizens. This means that it is simply an agency transferring purchasing power from taxpayers to employees on its work projects and to its bondholders. Depending partly on the rate of taxation and partly on the state's success in raising national income to or keeping it at, a high level, the expenditures of the state rapidly return to it. For example, let us suppose the national income is at \$5,000,000,000 when national revenues (state receipts) are at \$1,000,000,000. Now let the state raise loans so that its receipts go to \$2,000,000,000 with the effect of raising national income to \$8,000,000,000. If there were no time lag between cause and effect the state would get back its expenditures out of the increased national income without raising tax rates at all, and would leave \$2,000,000,000 more than before in the hands of the people, an increase of 50% in the net income, after taxes, left in the peoples' hands. Actually there is a time lag, but it is surprisingly short. "It seems to be a cautious conclusion that at least one-third, and possibly as much as one-half, of expenditure on public investment carried out in depression will 'come back' to public authorities within about two years".⁴ Thus public investment on a scale sufficient to prevent unemployment does not mean "national bankruptcy" and could be carried out at a level of taxation somewhat less than that to which we have become accustomed in wartime.

³ A. Hansen, "Fiscal Policy and Business Cycles" (New York, 1941).

⁴ Bretherton, Burchardt and Rutherford: "Public Investment and the Trade Cycle" (London, 1941) p. 356.

In England this theory has gained wide adherence. Not only economists but the public journals of all shades of political opinion embrace it. The public is familiar with what it involves and there has been more than a hint in official utterances that both Labour and some Conservative leaders are willing to accept it as a fair compromise between the more rigid and direct controls of Socialism and the laissez faire optimism of those Tories who believe that private enterprise should be relieved of heavy taxation and government restriction and be given one more chance to produce prosperity. In Canada, as in the United States, there is less widespread acceptance of this economic theory and the newspapers and business leaders repeatedly make public avowals of faith in the ability of "free enterprise" to maintain full employment if taxes are reduced and public restrictions removed. We must recognize the possibility that private investment, rapidly expanding to replace wornout capital and to meet the heavy postponed demand for consumer goods might approach full employment for a short period after the war; but we have to ask if we seriously believe it could evade the "fate of Midas", as Lord Keynes describes the inevitable diminution of investment for profit which must follow a business boom. If we do not believe that private enterprise could go on investing at a loss we must ask if the confidence in "free enterprise" to attain and maintain full employment is justified, if the experiment is worth the cost of a short boom followed by depression.

Official opinion in Canada has cautiously avoided an expression of policy, but there are indications that in Government and Treasury circles the public investment theory of employment control is accepted. If that is so, and if Canadian citizens as a whole come to support this policy, we have to ask how the wartime changes in the Maritimes affect their position and needs relative to a post war public investment programme. It is, of course, the general effect of public spending on the construction goods industries that is relied upon to stimulate spending and maintain employment, and in a small country like England the effect would be dispersed so evenly that no serious problems of regional distribution of the initial investment would arise. But in Canada it would be perfectly possible for the Dominion to invest sums of the magnitude we have indicated and yet so to distribute the initial investment as to produce commodity price inflation in some regions and to leave others with unrelieved unemployment. The question arises, then, how Dominion spending should be distributed among the different Canadian regions.

It might be allocated on an absolutely equal per capital basis so that, regardless of any other considerations, such as the degree of industrialisation, level of employment, need for the type of public work proposed, if Ontario had \$300,000,000 spent on new housing, Prince Edward Island would have a housing allotment of \$10,000,000 and British Columbia of \$75,000,000. This sort of

regional distribution would be as stupid as the concentration of all the spending in one or two areas. Clearly the public spending must regard certain principles of regional distribution. Of these the first is the probable multiplier (snowball) effect of a stimulus to the construction industries. This would depend both on the existing level of unemployment in the region and on the chief occupational pursuits of the people. Thus the multiplier effect would be greater in an industrial than an agricultural community. It would further depend on the area of dispersal of the secondary spending. Thus primary spending in Ontario would have its secondary effects largely in Ontario, whereas primary spending in New Brunswick would have secondary effects both there and in Ontario. The central areas where consumer goods of all sorts are manufactured would benefit from the secondary effects of primary spending in any Canadian region, but the wheat economy and the newsprint economy would benefit not at all from secondary effects and the areas in which these industries are concentrated would benefit only from direct primary spending therein. Their dependence of the world market would enable them to gain, on the other hand, from primary spending in Great Britain and the United States. Their need for Canadian public spending will be the less if those countries succeed in establishing full employment and high consumer purchasing power, the greater if England or America fails in its internal reconstruction. Indeed the position in the wheat and newsprint areas might be so serious that Canadian primary spending could not affect it and then there would arise the need for population transfer to other Canadian areas of full employment.

A second consideration which will have to guide the regional distribution of public investment will be local need. Though it is better to spend on useless things than not to spend at all, as Lord Keynes has argued, it is foolish to spend on useless things when Canada has such pressing needs for good new schools, more hospitals and clinics, houses, electrical development and distribution, roads and forest roads, hostels, civic centres, soil conservation and so forth. Yet one would not build in Fredericton a civic centre of the same size as in Hamilton, or spend money on forest development in the prairies (except incidentally for soil conservation) in the same proportion as in the Maritime forest projects. Local need for houses, schools, roads, bridges or an electric grid must guide both the nature and, to some extent, the distribution of the spending.

A final consideration should be the long run employment effects. Thus a rehousing programme in Amherst if sufficiently large, could prevent immediate post war unemployment there, but eventually, when all the houses were built, the people who lived in them would have nothing to do unless industries were also located there. The public spending ought not to have the effect of keeping people in areas where there is no prospect of future employment, but should develop industrial opportunities of a permanent sort.

This means that the spending of government may be considered as made up of two types, one directed towards the immediate palliative effect of employment; the other, the development of Canadian resources, human and physical, so as permanently to improve their capacity to produce. The two programmes cannot be worked out independently. If no long run developments are possible in a town, the short run programme should be kept at the minimum necessary to meet immediate post war needs, and population should be aided in moving to areas of more opportunity. This implies the corollary that developmental spending should in the long run be distributed according to resources.

Thus the needs of the Maritimes for public investment after the war have to be considered from two points of view, (a) the immediate volume of unemployment requiring relief, and (b) the type and extent of resource needing development. Our examination would show that if there is a policy of public investment adopted as a post war economic regulator in Canada the most important short run projects would be needed in the areas of Saint John, Amherst, New Glasgow, Sydney and Halifax, where there will be immediate post war unemployment of considerable magnitude. From some of these areas population transfers might be assisted over a period of time to regions of greater economic opportunity. Long run developmental schemes, our survey suggests, could be worked out for the forest areas of northern and north central New Brunswick and Charlotte County, and for parts of Cape Breton and Cumberland County in Nova Scotia. Further industrial development and municipal improvement should be possible in Cape Breton, and fairly extensive public works in the cities and harbours of Saint John and Halifax could be undertaken with social, if not commercial, profit. The reconditioning and improvement of Canada's transportation system will presumably entail extensive overhauling and reconstruction in the Maritime regions. Finally rural housing and the development of rural services are a social need, and would enable a considerable expenditure to be disturbed in the Maritime region.

It is fairly evident, if the proper principles of regional distribution are to be observed and the proper upward thrust from the construction industries is to be obtained, that central control of the public investment - indeed of the whole fiscal system - must be lodged in Ottawa. This leads us, therefore, to the second "area of decision", that of Dominion-Provincial relations. In brief we have thought in Canada that the regional and racial divisions of interest were the chief obstacles to national unity and the formulation of a concept of national interest in Canada. This traditional view has a strong historical basis and remains in part true even today. But a good many of the supposedly provincial conflicts of interest have their root in something else. The development of modern capitalism, which in its early competitive stages was sup-

posed to find a unity of interest in the fullest development and utilisation of national resources, has in Canada as in other countries led to a concentration of industry and an integration of ownership which has created a good deal of fundamental conflicts of interest. It has led to the conflict between the smallscale entrepreneur, striving to retain his traditional place in the economic order, and the encroaching trust; this conflict, which is as real between the small enterprise in Ontario and a national or international trust as it is between the typical Maritime firm and the same trust, nevertheless appears to the Maritime business man as a conflict between him and his fellows on the one hand and "upper Canadian" capitalism on the other. Yet this is only incidentally a regional conflict. Basically it is a social one. The same thing is true of the opposition of interest between the trust, who often is a partial monopolist (more exactly he is selling in an imperfect market which he dominates or attempts to dominate), and the consumer. The monopolist does not have as his first interest the maximisation of real net income (an indirect effect of the search for profit in a perfectly competitive society) but finds his highest net profits are realized by restricting output and raising prices. Thus the popular charge that trusts "exploit" the consumer has a basis in truth. The people of the Maritimes, typically work people, miners, fishermen, farmers, small business and professional people on low salaries, with few, if any, direct interests in "big business" again interpret this phenomenon as their exploitation by "upper Canada", when it is really an opposition between their interests as consumers, along with all other consumers in Canada, and the special interests of a small number of specially placed producers. Again what economists call "monopsonist" purchasers of labour services, that is firms in a position to control the wages of labour in an area, are able to "exploit" labour in the sense that they can pay less to the worker than the net increment the worker adds to the value of output. Something very like what Karl Marx called "surplus value" is taken by the employer in such cases. This leads to a real and not imaginary opposition of interest between labour and capital and is a basic fact in social conflict. It may appear as a regional opposition if the workers live and work in one region while the trust is owned and directed in another, but, once again, the appearance falsifies the reality.

This is not to say that there are not some real divisions of interest between Canadian regions. There is bound to be division between the export-producing west and the tariff-protected manufacturing centre over foreign trade policy. There are non-economic conflicts arising from friction between a Catholic semi-feudal social order in Quebec and a mechanised North American capitalism elsewhere in Canada. These conflicts though they may be based on misunderstanding are unhappily real enough and dangerous enough to Canadian unity, but they will yield to efforts to obtain understanding, tolerance and sympathy if there is found a resolution of

the basic economic oppositions. If Frenchspeaking and English-speaking Canadians and if Canadians from the Maritimes as from Ontario find that their labour is productive of a growing level of welfare in which they all share they should find it amazingly easy to gain a sense of a common future and common nationhood. The finding of this basic unity of economic interest requires recognition of the true nature of the conflicts which block its realisation.

The emphasis of the Rowell-Sirois Report on the Dominion-provincial relationship, no doubt necessary in view of the Commission's terms of reference, has perhaps clouded the real issue. The Report recommends very moderate reallocation of authority between Dominion and provinces and an extensive grant-in-aid system to moderate discrepancies between welfare standards in different regions. What would appear necessary if there is to be either a successful public control for full employment programme or a resolution of the basic interest conflicts is a complete reallocation of governmental powers. The programme for full employment requires a concentration in the hands of the Dominion of complete monetary and fiscal authority and control of investment similar to that enjoyed under the extraordinary powers of the War Measures Act in time of war. It would require also authority over labour relations and full competence for labour legislation. If an effort is made to resolve the conflicts arising from trustification of the economy much greater power in matters of civil and corporation law, and, perhaps, a great development of the Dominion's administrative services would be necessary.

This contemplated concentration of power in the hands of the Dominion government and the actual enormous wartime growth of the federal civil service has caused alarm that the unchecked overbalancing of power will lead to danger of government by bureaucracy. But this danger may be averted by a parallel devolution of powers. Many of the natural resources can best be administered on a regional basis. In some cases the region would not correspond with present political divisions, but regional ad hoc boards, similar to those advocated by Mr. W.A. Robson for England, could be set up by the provinces involved. Thus foresters seem to believe that proper forest policy cannot be and ought not to be administered by Ottawa, but should be worked out for each of the regional forests, the Maritimes and eastern Quebec forest, the western Quebec and eastern Ontario forest, the Great Lakes and Manitoba forests, the northern forests and the far western forests. Fisheries also and minerals could be administered on a regional basis. The problems of the Atlantic and the Pacific fisheries are different and require local understanding and separate treatment. One might even question the need for dual administration of agriculture. Given adequate financial capacity there are many functions more suitable for regional than national administration, just as full control of the basic economic processes must be lodged in Ottawa without the possibility

of obstacle from "provincial rights" if there is to be successful regulation of the economy. If this thesis for a moment be accepted, it implies that the Maritimes would seek for a solution of their major economic problem of employment not separately but as an integral part of the Canadian nation. In that nation they would be, as a result of the war, an even less important industrial region than before. The great concentration of new industry and enterprise in the central provinces, even allowing for much capital obsolescence in peacetime industries and for much new capital that cannot be converted from war to peace, has given those provinces even more than before possession of the industrial processes of the nation. The Maritimes can scarcely hope to have that process of concentration reversed in their favour after the war. What they may properly expect is the development of those industries which the experiences of both war and peace have shown to possess special advantages in the Maritimes, forest industries, fish and fish-processing, iron and steel and associated industries, certain types of agriculture and shipping. It might even be in the national as in the regional interest to suggest the devolution of administration over some of the natural resources on which these industries rest.

The third "area of decision" is that of purely provincial policy. The people of the provinces already possess some and might possess all of the administrative authority over forestry, agriculture, mines and fisheries. They are responsible for the development of educational and public health services, and in their own hands are what they wish to make of their towns and rural communities. As we have said it is not the function of such a work as this to advocate policy. But we have seen the effects of the war on the forest industries. The question arises as to what forest policy should be pursued to preserve the forests from exploitation and to enable the forest industries to keep and improve their wartime expansion. Something the same can be said for agriculture, though here there is more dependence on the ability of Canadian industry to absorb surplus farm population. Mining and heavy industry we have seen to have had great expansion during the war, but in this case their future depends more on federal reconstruction policy than on provincial policies, though even in this case, we have seen that the province of Nova Scotia has on its own account explored the possibility of developing a complementary chemical industry in Cape Breton.

Educational and other social services will, as an immediate aftermath of war be demanded on an expanded scale. Social problems of adjustment and retraining will be great, as we have seen. Here, too, the people of the provinces themselves will have to decide what and how much they wish to do. The fiscal position of provinces and municipalities has been much improved by the elastic buoyancy of revenues, though costs have gone up, debt charges in American dollars are irksome and some tax sources have been lost to the Dominion. However fiscal capacity will impose no limit to what is to

be done. The Dominion in any case will be spending heavily and will undoubtedly be prepared to subsidise provincial and municipal reconstruction projects. War, after all, is purely negative in its results. It prevents other people, the Nazis, from disposing at their will of our lives and resources. It does not determine how, when we possess the unchallenged right to dispose of them ourselves, we shall decide to do so. If we are prepared to pay, as we are now paying, for the right to build up a good national life according to our purposes, we should not find the price of that positive achievement beyond our means.

