

CHAPTER XII

GOVERNMENT IN RELATION TO THE COAL INDUSTRY

This chapter will treat briefly with the legislative authority of the Dominion and the provinces, will give a short summary of the activities of the provinces in relation to coal with some reference to existing legislation in that sphere, and will refer more specifically to the activities and the relevant legislation of the Dominion. As the Canadian coal industry, like many another industry, owes its present position to the various measures of control established during World War II, it will also trace the development of the general controls and will examine in greater detail the activities of Coal Administration and Coal Control. Some details of receipts and expenditures of the provinces with reference to coal will be given, as will the cost to the Government of Canada of the various subsidies paid during and since the war, and the cost of administering the wartime control of coal.

Constitutional Aspects

The British North America Act divides the entire field of legislative jurisdiction between the Parliament of Canada and the provincial legislatures. Section 92, the section which sets out the spheres of exclusive legislative authority of the provinces, assigns to them power to legislate concerning the "management and sale of the public lands belonging to the province" and legislative authority over "property and civil rights in the province" and "matters of a merely local or private nature in the province". As interpreted by the Courts, this includes jurisdiction over such things as the manner in which coal mines are to be operated, safety measures to be observed, all matters concerning labour such as wages, hours of work, labour welfare and the settlement of labour disputes, and marketing practices and prices insofar as sales within the province are concerned. It also includes, in the case of provincial lands, authority over the granting of coal leases and the royalties and rentals to be paid thereunder. This section also gives the provinces exclusive authority to make laws in relation to "direct taxation within the province in order to the raising of a revenue for provincial purposes".

Section 91, delimiting the legislative field of the Dominion Parliament, gives that body exclusive legislative jurisdiction over all matters not assigned specifically to the provinces, general power to raise money by "any mode or system of taxation" and authority over "the regulation of trade and commerce". In addition, Parliament is given jurisdiction over "Militia, Military and Naval Service and Defence" and is authorized to make laws generally for "the peace, order and good government of Canada". These latter powers, singly or in combination, have been interpreted to give Parliament in times of emergency the right to override the legislative authority of the provinces in the fields specifically assigned to them. This authority will be dealt with more fully when we come to consider the activities of the Dominion Government in relation to coal during the two World Wars.

In the light of this brief review, it is evident that any planning for the coal industry by the Dominion Government must take into account the powers and policies of the governments of the several coal-producing provinces.

PROVINCIAL GOVERNMENTS IN RELATION TO COAL

The Ownership and Control of Coal Lands and Revenue from Coal

The ownership of coal rights in the provinces is reviewed in the chapter on Coal Reserves. In Nova Scotia and New Brunswick the mineral rights are vested in the provinces and the operators pay a tonnage royalty on the coal mined. In Alberta and Saskatchewan the ownership of coal lands was vested in the Dominion until 1930, when as of October 1 in that year it was transferred to the provinces by Chapters 3 and 41, respectively, of 20-21 Geo. V. During the period of Dominion Government control, ownership of a very considerable percentage of the western coal lands passed into the hands of private owners, generally free of royalty but sometimes with a royalty reserved to the Crown, but the policy of the governments of these provinces throughout has been to retain ownership and permit mining to be carried out by private operations under lease or licence on a royalty basis or on the basis of a rental coupled with a royalty. In British Columbia substantially all of the coal lands in the areas in which they operate are owned by the operating companies, but new areas opening up will be operated under leases or licences granted by the Province under the Coal Act (1944 B.C. c. 26).

The ownership of the coal lands provides the provinces with a means of effecting a practical control of coal mine operations through licensing, leasing and forfeiture procedure, the leases themselves and the coal mining laws of the provinces generally laying down rules under which mining operations may be conducted. The provincial governments derive substantial revenue from royalties, rentals, licence and other fees, taxes on production, and in the case of alienated mineral rights, taxes on the coal lands themselves.

Royalties vary considerably from province to province. Nova Scotia charges a royalty of 12.5 cents per long ton and a rental of \$30.00 per square mile, rental payments being credited against the royalty liability. In New Brunswick a royalty of 9 cents per short ton and a rental of \$10.00 for each 40 acres are charged, the rental there also applying against the royalty. Saskatchewan and Alberta each charge a rental of \$1.00 per acre on leases of Crown coal lands and, in addition, charge a royalty of 5 cents per short ton on the coal produced, save where coal lands have been sold subject to royalty, in which case the royalty is 7 cents per ton. In British Columbia, where operations are conducted on Crown lands, a rental of \$1.00 per acre plus a royalty of 25 cents per ton is imposed.

In Nova Scotia and New Brunswick there are no alienated coal lands, consequently no coal lands tax; nor does there appear to be any tax on coal production. British Columbia has had for many years a tax of 10 cents per long ton payable by the occupant of coal lands, whether owner or lessee, on all coal produced and sold, except coal on which royalty is payable and except coal used in the province for coking, in which case the owner of the coke ovens pays a tax of 10 cents per ton on the resultant coke. In both cases the tax is alternative to the provincial income tax, the tax-payer paying whichever is the greater. In addition, the owner pays a tax on the assessed value of coal lands of 1 per cent where mining is conducted thereon and 2 per cent on non-producing lands. The former tax has meant an average revenue over the past 10 years of about \$130,000 per year, and the latter an average of approximately \$34,000. In 1938 Alberta embarked on a policy of mineral taxation, followed by Saskatchewan in 1944. Both provinces now impose a tax on all privately held mineral rights, the former of 1.5 cents per acre (though the executive has the authority to increase this to 5 cents) and Saskatchewan of 3 cents per acre. Both governments are also empowered to impose an additional tax; in Alberta up to 10 mills on the assessed value of the minerals where the lands are located in a.

“producing area”; in Saskatchewan producing lands are taxed on the same basis, but on non-producing lands in producing areas the added tax is 50 cents per acre. It is assumed that both provinces in enacting this legislation had in mind the forfeiture of unexploited mineral lands for non-payment of tax as well as the revenue possibilities, though in Alberta the coal rights in some 15.75 million acres have been alienated so the revenue possibilities are substantial even though up to date the receipts are unimportant. In Saskatchewan no assessments of coal lands have been made up to the present, but the acreage tax produced in its first year about \$25,000.

The revenues received by the coal-producing provinces in recent years, derived from royalties, rentals and taxes, are as follows:

Year	Nova Scotia	New Brunswick	Saskatchewan	Alberta	British Columbia
	\$	\$	\$	\$	\$
1935	716,334.37	29,369.00	26,006.94	329,610.95	153,124.64
1936	671,495.75	32,337.00	23,047.97	315,162.94	156,559.81
1937	730,333.50	36,639.00	25,845.63	293,194.97	153,277.18
1938	657,286.62	26,068.00	20,966.28	263,772.26	152,249.13
1939	692,834.87	38,275.00	19,243.53	292,803.05	207,488.64
1940	809,101.85	51,905.00	26,622.26	305,524.69	192,494.95
1941	758,070.03	47,761.00	23,240.74	324,458.09	213,514.85
1942	751,104.06	43,948.00	20,684.38	344,343.99	216,877.57
1943	623,250.28	44,160.00	27,758.38	352,684.81	209,567.00
1944	602,685.21	36,259.26	23,267.48	391,431.28	210,836.75

It should be noted, in using the above figures for the purpose of comparison, that in the case of all provinces but British Columbia the figures include little or no money received from taxation, while the British Columbia revenues are practically all derived from the two forms of taxation referred to above.

Provincial Control of Mining, Miners' Qualifications, and Labour Welfare

In all provinces where coal is produced statutes or regulations dealing with the operation of coal mines are in effect. The provincial departments provide mine inspectors and staffs to administer this legislation, and their activities relate to such matters as the opening or closing of mines, mine rescue work and the administration of safety regulations, the keeping of statistics, the preparation of monthly and annual reports pertaining to all phases of production, the administration of mine boundaries and conservation methods, and the administration of regulations concerning installation of electrical and other machinery. The provinces also hold examinations and issue certificates of proficiency to coal miners, managers and engineers. The general departmental expenditure of the provincial governments in relation to these matters in recent years is as follows:

Year	Nova Scotia	New Brunswick	Saskatchewan	Alberta	British Columbia
	\$	\$	\$	\$	\$
1935	103,567.27	7,351.00	17,816.47	35,455.47	25,697.04
1936	90,003.73	7,711.00	17,643.02	34,609.37	27,862.34
1937	107,739.59	8,082.00	15,469.40	38,417.88	31,150.27
1938	121,251.50	8,402.00	8,811.78	37,711.57	32,837.05
1939	126,331.11	8,023.00	18,985.21	42,201.73	31,236.22
1940	146,677.20	7,914.00	15,461.76	37,624.13	30,931.99
1941	126,273.75	8,038.00	10,342.21	38,671.13	29,589.60
1942	137,264.57	8,643.00	10,460.71	39,638.71	29,168.45
1943	165,237.76	11,289.00	10,962.22	42,522.74	30,935.20
1944	184,025.21	11,740.00	10,195.94	41,414.41	35,328.83

These figures again require some adjustment before being used for the purpose of comparison, inasmuch as the Nova Scotia figures include an average of about \$28,000 per year paid by the Government of Nova Scotia by way of miners' relief and grants to societies to supplement Workmen's Compensation, and to take care of cases where Workmen's Compensation was not payable. In addition, in some of the provinces where coal mining is only one of many matters handled by the provincial department in question the salaries of the senior officials of the department have not been included, while in other cases they have.

Each of the provinces has also some form of Workmen's Compensation to cover accidents in the mining industry as well as other industries, the compensation generally being paid by the province to the injured workman (or, where death has occurred, to his dependents) out of assessments against employers.

Statutes passed in exercise of provincial jurisdiction over wages, hours of work, child labour, and labour disputes, relate to all employment and are touched upon in the chapter entitled Industrial Relations. Those dealing with wages and hours of work are, in any event, of no particular importance here, as they fix minimum standards which are below those prevailing in the mining industry.

As municipal affairs are primarily of provincial concern, the provinces have sometimes been called upon to assume liabilities of substantial proportions to maintain coal mining communities. For example, the Province of Nova Scotia found it necessary in 1935 to assume financial responsibility for the Inverness coal mines. In this venture, to the end of 1944 the Province had expended \$1,633,214.50 to cover operating deficits and \$402,747.46 for capital construction.

Marketing of Coal

Since 1941 the marketing of coal has been carried out under the jurisdiction of the Dominion Government, prices being fixed by the Wartime Prices and Trade Board and the distribution of coal being under the direction of the Coal Controller. Prior to World War II, however, the provinces rendered assistance to the producers in dealing with their marketing problems. In 1920 Alberta established a coal sales publicity office in Winnipeg. The work of this office assisted in the replacement of American anthracite by Alberta coal and substantially increased sales in that industrial and commercial market. Alberta Trade Commissioners in Ottawa and Toronto have attempted to promote sales in Ontario. Alberta also enacted in 1925 a Coal Sales Act (1925 Alta. c. 21) to standardize the grades of coal placed on the market. In Saskatchewan, following hearings before the Turgeon Coal Commission of 1934, the Province enacted the Coal Mining Industry Act (1934-35 Sask. c. 73). Under this Act rules of fair competition, including a minimum price structure and a minimum wage scale and code of ethics, were established. In British Columbia, a Coal Sales Act (1931 B.C. c. 38) is administered by the mines inspectors covering the grading of coal and the use of brand names.

Geology and Research

In geology and research work the provincial governments have relied principally on the Federal Department of Mines; however, most of them have made some independent geological surveys. New Brunswick has done no research work and its geological work has consisted of hand drilling, diamond drilling, surveying, and the preparation of plans. Nova Scotia has also confined its geological work to a certain amount of diamond drilling and a few summer field parties. It established an Advisory Board on Fuel Investigation in 1928, consisting of representatives of the Provincial and Dominion Governments, the Nova Scotia Technical College, the Canadian National and Canadian Pacific

Railway Companies, and the coal operators. This Board investigated the properties of Nova Scotia coals. Boiler trials, economy tests and chemical analysis work have been carried out at the Nova Scotia Technical College and St. Francis Xavier University. Saskatchewan has done very little in the way of geological work, and its provincial research effort has been directed towards the development of the use of lignite. This work commenced in 1912. In 1918, in conjunction with the Dominion Government and for a time the Province of Manitoba, experimental work on the carbonization of lignite was carried out by the Lignite Utilization Board of Canada, which will be dealt with later in this chapter. Saskatchewan's share of the costs of this Board was \$267,500. Since the Board concluded its activities in 1924, the Province has continued to foster the use of Saskatchewan lignite. In addition to the cost of the Lignite Utilization Board, the Province has expended about \$72,500 on research.

The Province of Alberta has made a number of detailed surveys of the coal deposits of the Province, most of which were made prior to 1928; one important survey commenced in 1945 and is still continuing. Most of this was done under the direction of the Alberta Research Council, which was established in 1919. Until 1933 this Council was financed by direct legislative grant. For ten years (1933-1943) the work of the Council proceeded on a reduced scale as an activity of the Government-financed University of Alberta. Since 1943 the Province has again financed directly the work of the Council.

The Alberta Research Council has also conducted extensive investigations on the characteristics of coal, with particular reference to classification, preparation, processing, use in domestic heating equipment and automatic stokers. The Council has also conducted boiler trials on various coals. It has published a number of pamphlets, of which the most important is perhaps Report No. 35 published in 1944 entitled "Coals of Alberta". From 1923, the earliest date for which accurate financial records are available, to the end of 1946, the Alberta Research Council will have expended approximately \$336,200 on fuel research and approximately \$73,350 for geological work.

Under the terms of British Columbia's entrance into Confederation the Government of Canada undertook to do certain geological work, and as a consequence (at least until very recently), no such work was done by the Province directly; nor, apparently, has the Province done any extensive work in the matter of fuel research.

Several of the provinces have on various occasions appointed Royal Commissions to investigate certain aspects of the coal industry. Among these are the Duncan Commission of 1925 in Nova Scotia, which dealt specifically with labour problems but made recommendations respecting the establishing of coking plants; the Turgeon Commission of 1934 in Saskatchewan; the Barlow Commission in Alberta, appointed in 1935; and the Macdonald Commission in British Columbia appointed in 1934.

ACTIVITIES OF THE GOVERNMENT OF CANADA

Geological Survey and the Mines Branch

The Geological Survey is one of Canada's oldest public services, having been founded in 1843 under Sir William E. Logan. Logan was appointed on the recommendation of the Geological Survey of Great Britain. Originally the Survey was financed by the British Government but it was subsequently taken over by Canada.

At the time when the Geological Survey was founded, Canada was mostly a wilderness which remained to be explored, and the work of the Survey was to map the country and to make its potentialities known. Perhaps two-thirds of the hundred years which have elapsed since Logan commenced his work were

occupied in preparing sketch maps of half a continent on which our colonization and mining enterprise have been based. In addition, certain sections of the country were more intensively mapped but it will require many more generations before all the details will be filled in.

Originally the Survey was the only government institution engaged in exploration and investigation of the natural resources of Canada, but in course of time its work has become more exclusively concerned with the mining industry. At the present time all the provinces maintain departments of mines or similar organizations, and the Geological Survey consults with the provincial authorities before commencing field work. The results of all operations are made available to interested parties and to the public.

The Geological Survey commenced its work in the coal fields of Nova Scotia before Confederation. In 1873 work was commenced on geological maps of the coal fields of Nova Scotia, and the scientific basis for the development of the Nova Scotia coal mining industry is the information compiled at that time.

The Geological Survey had a party mapping the coal fields on Vancouver Island before British Columbia became a province. One of the conditions under which British Columbia joined the Union was that the Dominion would continue geological survey work in that Province.

In western Canada the work of the Geological Survey followed the construction of the railways. Exploration parties surveyed and mapped the coal fields of Saskatchewan, Alberta, and the mainland portions of British Columbia in the vicinity of the areas served by the railways. By 1907 the preliminary exploration work of the Geological Survey was virtually complete in these areas. While exploration work was proceeding in western Canada, more detailed information was being compiled regarding the coal fields of Nova Scotia.

In 1907 the Dominion established the Department of Mines to take over and expand the work of the Geological Survey. The Department, as created, consisted of two branches—the Geological Survey and the Mines Branch. The Geological Survey branch continued the detailed work in relation to the coal fields. By 1913 sufficient data had been assembled to permit an estimate of the coal resources of Canada to be presented to the twelfth International Geological Congress at Toronto.

Detailed geological surveys of the coal measures and associated strata were continued until about 1934. Maps and reports were prepared, as well as coloured plans of many coal fields, for the use of the operators and engineers. While these detailed surveys do not make as interesting historical reading as the original reconnaissance surveys with their spectacular discoveries, the detailed work was a natural sequence to the earlier work and was necessary to make the work of the Geological Survey of practical importance. By 1934, lack of markets was making it difficult for operators to dispose of their potential output and, in consequence, the exploratory work of the Survey was considerably curtailed. Most survey parties were withdrawn from the field, and such work as has been carried out since was done to assist existing mines.

While it is impossible to segregate amounts spent for geological survey work on coal from work done with respect to other minerals, departmental officials estimate that during the 1920's approximately \$50,000 per year was spent on coal surveys, decreasing to about \$30,000 per year during the 1930's and about \$20,000 per year since.

At the present time the Geological Survey has one party operating on Vancouver Island under the direction of a resident geologist. In addition, there is one party operating in the coal fields of Nova Scotia.

When the Department of Mines was formed in 1907 provision was made for a Mines Branch, in addition to the Geological Survey. A Fuels Division of this branch was established and equipped to provide research facilities for

the productive side of the industry to the end that all requisite technical data would be available concerning Canadian coals. A small experimental station, primarily built for work on peat, gradually increased its scope and became the Fuel Testing Station from which the present Fuel Research Laboratories have developed. The Fuels Division has continuously conducted both field and laboratory investigations and major investigations, including physical and chemical surveys, have been made to ascertain the characteristics and suitability of Canadian coals for different uses. Special tests have been made as to burning efficiency and coking potentialities. Experiments which have been carried out relate to separation, washing, sizing and blending of coals, and the effects of storage. Samples tested sometimes exceed one thousand per year. Active co-operation with United States authorities has provided an international coal classification scheme. The Division has been active in research work on Nova Scotia coal, with a view to extending its use in central Canada both for industrial purposes and (when converted into coke) as a substitute for imported anthracite. Hydrogenation investigations have indicated that various Canadian coals may be suitable for conversion to petroleum products. All information obtained by investigation is made available in reports, pamphlets and other publications.

During World War II large scale investigations had to be discontinued as staff was loaned to other departments for work on war purchasing and special wartime projects. Prior to the war the Division of Fuels was expending approximately \$19,500 per year for salaries, administration and materials on coal research. Equipment in use was valued at about \$130,000.

Lignite Utilization Board

One of the results of the fuel shortage in 1917 was the appointment of a Fuel Committee to study the western lignite problem. This Committee recommended that a commercial demonstration be made of a process of utilizing lignite for domestic use by carbonization and briquetting. By P.C. 643 of March 20, 1918, and an agreement made thereunder, the Lignite Utilization Board was established, the Dominion undertaking one-half and the Provinces of Manitoba and Saskatchewan one-quarter each of the cost of a commercial plant to be built in the Souris district in Saskatchewan. The plant was built under an agreement with Western Dominion Collieries Limited, which owned the surface and mineral rights on the plant location. The plant was completed in the fall of 1921, but the process did not appear to be commercially successful and the plant was closed down early in 1923. In March, 1924, the Board reported in detail its operations and the results secured, and stated that a technical process had been completely demonstrated but it was not the process for which the plant had been originally designed and conversion of the plant to the new process would require a very large additional expenditure of capital. In 1927 the plant was disposed of to the company on whose property it was built. Since that time it has changed hands again and, as this is written, is operating successfully. The total cost of the Lignite Utilization Board was \$1,037,225.95, of which the Dominion contributed \$534,215.05, Saskatchewan \$267,105.53, and Manitoba \$235,903.37, Manitoba having withdrawn before the Board concluded its work.

Peat

In the absence of commercial coal resources and in view of the extensive use made of peat in Europe, it is natural that considerable attention has been given in Ontario and Quebec to the possibility of using the peat deposits of those provinces. In 1864 a plant for the manufacture of peat fuel was established at Bulstrade, Quebec. From then until 1910 it is known that over forty enterprises

were started to utilize peat, but all ended in failure. In 1908 the Dominion undertook to investigate thoroughly the peat resources of Canada, and two years later the Department of Mines sent representatives abroad to study the European methods of preparing peat fuel. As a result of enquiries, a small plant was imported from Sweden and installed at Alfred, Ontario. After several years of experimental work, an enlarged plant was erected and commercial operations commenced in 1914. Owing to the outbreak of war, operations were suspended.

In 1918 a critical fuel shortage had developed and, in conjunction with the Ontario Government, the Dominion appointed a Peat Committee to resume the study of peat fuel production with a view to finding a practical method capable of commercial operation on a large scale. This Committee carried on exhaustive investigations over a period of about five years at a cost in the vicinity of \$350,000, borne equally by the Dominion and Ontario. An operating plant was constructed at Alfred, Ontario. The Committee finally reported that the manufacture of peat fuel could be carried out successfully but its market was limited to areas within a short distance of the plant, and the Government took the position that private capital should continue the development. Private attempts to develop the enterprise at Alfred failed, and after a further expenditure of about \$150,000 by the Dominion the project was finally abandoned in the autumn of 1929.

Government Control during World War I

The supply of coal prior to the war had not been a problem. Even the early years of the first Great War did not change this situation, but as industry in both Canada and the United States expanded, due to war requirements, a coal shortage developed during the winter of 1916-17, and prices moved upwards. At the same time Canada's production had been falling, due, largely, to the loss of men from the mines to the ranks of the Army. In Nova Scotia alone, in the early days of the war 6,000 experienced miners volunteered for service. Differences between operators and employees were also occurring, largely due to the increase in cost of living, and this contributed to the decrease in production.

The first positive step taken by the Dominion Government in the control of the coal industry was the appointment by P.C. 1725 on June 25, 1917, of W. H. Armstrong as Director of Coal Operations in the Alberta and eastern British Columbia field. He was given authority over the management and operation of coal mines in that district, and was given authority also to control wages and fix the price of coal at the mines. It was found, however, that this was not sufficient, and on July 12, 1917, by P.C. 1887 a Fuel Controller was appointed, his principal responsibilities as set out in the Order in Council being as follows:

- (1) To examine the coal situation in Canada as to the probable demand, the output of Canadian coal that could be relied on, and to ascertain what measures might be adopted to increase the output; to investigate the outside sources of coal; and the possibility of providing transport of both Canadian and foreign coal.
- (2) To confer with and co-ordinate the different interests involved, with a view to ensuring as far as possible a sufficient supply of coal.
- (3) To make regulations, for the approval of the Governor General in Council, governing the price of coal, wood, and gas, and the production, distribution, sale, delivery, consumption, and use thereof.

All of the authority conferred on both the Director of Coal Operations and the Fuel Controller was derived from the War Measures Act of 1914 (5 Geo. V. c. 2), which was enacted under the "peace, order and good government" clause of the British North America Act and which statute gave the Governor General in Council power "to make such orders and regulations as

might be deemed necessary by reason of the existence of real or apprehended war, invasion or insurrection, or advisable for the security, defence, peace, order, and welfare of Canada”.

The Fuel Controller's immediate objectives were—first, to secure equitable distribution of available coal supplies to meet householders' requirements across Canada, a matter which was made more difficult by the redistribution of the population due to the establishment of war industries; and second, the maintaining and increasing, if possible, of coal shipments from the United States. It was decided that the first problem could be met best by making use of provincial and municipal machinery, and as a consequence each province in the early summer of 1917 appointed an administrator to work in co-operation with the Fuel Controller. Coal regulations were made empowering any municipality to appoint a local Fuel Commissioner or Board of Commissioners for the purpose of watching local supplies and requirements and developing teamwork amongst dealers, and giving such Commissioner or Board of Commissioners, if appointed, power to pool stocks of coal, to ration consumers, to requisition delivery equipment, and to insist on partial use of coal substitutes where available. On the second problem the Fuel Controller worked in close co-operation with the United States Fuel Administration and was generally successful in increasing deliveries of American coal, in spite of a greatly increased demand in the United States.

In the realm of price control, the Fuel Controller proceeded by licensing importers whose licence fees accrued to the Dominion, and by licensing dealers whose licence fees were paid to the provinces. He also fixed coal prices at the mines and fixed a maximum profit of 30 cents per ton to brokers, 35 cents per ton plus the cost of handling to the wholesaler, and 50 cents per ton net profit to retailers. To make this control effective, he also issued regulations dealing with the calculation of costs, excluding all items of capital, income and business profits taxes, and interest on borrowed money or on money invested in land, plant or equipment.

The Fuel Controller was also active in the sphere of conservation by a program of information designed to make the best possible use of the available coal. He also brought about the periodical closing of places of amusement and, in co-operation with the Canadian Railway War Board, was able by such measures as heavier loading of railway cars, elimination of duplicate train services and careful routing of transportation, to save an estimated one million tons of coal on the Canadian railways during the year 1918.

On the completion of his work at the end of March, 1919, the Fuel Controller, C. A. Magrath, made a complete report to the Minister of Trade and Commerce. This report, which was published, reviewed the activities of Fuel Control during World War I and dealt in considerable detail with fuel problems in Canada.

The Dominion Fuel Board—The Period between the Wars

Following the conclusion of the first Great War, the consumption of coal (which had reached a total of 34,800,000 tons) fell off rapidly due to the cessation of munition production, the decline being largely in imported coal. Coal supply was not a serious problem and no great attention seems to have been paid to the subject, save for continued activity in research by the Department of Mines, until 1921 when a Special Committee of the House of Commons was set up to deal with the fuel resources of Canada, the production of Canadian coal, the importation of coal, the transportation of same, and the development and utilization of other sources of energy. The report of the Committee recommended the appointment of an officer to keep in close touch with the fuel situation, clothed with powers to cope with any emergency that might arise and authorized

to examine all phases of the fuel situation. The Committee also urged the development of water resources, the electrification of railways, the reduction of water transport rates, and the wider use of Canadian coal and peat instead of imported anthracite, with a campaign of publicity in that direction.

Following the report of this Committee and influenced no doubt, by the extended strike in the United States coal fields in 1922, the Minister of Mines in a report dated November 8, 1922, after outlining the problem and reviewing the work done up to that time by the Department of Mines and the provinces, recommended the organization of the Dominion Fuel Board to be composed of government officials already connected with the investigation of fuels and to be given authority to carry out more fully the recommendations of the House Committee and of the Magrath report. This Board, under the chairmanship of Dr. Charles Camsell, Deputy Minister of Mines, was established by P.C. 2381 on November 25, 1922. Specifically, the Board was instructed to study Canada's fuel problems "in view of the ultimate necessity of substituting other fuels for anthracite coal for domestic heating purposes in Central Canada".

During the winter of 1922-23 the United States Fuel Control Board had been unable to give Canada the usual supply of anthracite, and there was a severe shortage of domestic fuel. The Dominion Fuel Board warned that Canada could not hope in the future to get the usual supply of anthracite from the United States.

On March 8, 1923, a Special Committee of the Senate was appointed to consider the Canadian fuel supply, its most efficient use, and whether the Committee could assist the Dominion Fuel Board. It recommended that the Board be empowered to co-operate with the transportation and other interests, to the end that freight rates might be reduced and better facilities provided for the handling and storing of coal. It recommended also that the public be informed as to the need for using Canadian coal and the advantages of obtaining supplies during the summer season when transporting and mining facilities were capable of supplying requirements. The Committee urged that the Board be given fullest powers and sufficient funds to prosecute to the full its investigation into the use of Canadian coal and to give the widest publicity to the information obtained. It also recommended that the governments interested should consider the advisability of experimenting with the use of peat on a larger scale than theretofore.

On March 19, 1923, a resolution introduced in the House of Commons and referred to the Select Standing Committee on Mines and Minerals stated that, in the opinion of the House, the time had arrived for Canada to have a national policy in relation to its coal supply and that no part of Canada should be left dependent on the United States. The report of the Committee stated "it is absolutely necessary that every step possible should and must be taken at once by Canada, through its government, its transportation companies, its coal operators, and manufacturers of other fuels, to make Canada independent of other countries for its fuel supply".

The Committee urged the calling of a conference of coal operators, representatives of transportation companies, and representatives of the various provincial governments and the Federal Government, to deal with the fuel situation, and that the Government undertake an independent investigation to ascertain the actual cost of carrying coal from eastern and western points to Central Canada. The Committee urged further investigation into the development of peat and also reported on the value of coke as a domestic fuel, and remarked that coking plants in the large centres of Canada might assist in solving the domestic fuel supply.

The Dominion Fuel Board on May 21, 1923, issued an Interim Report. It recommended, amongst other things, investigation of the possibility of utilizing Nova Scotia bituminous coal in the making of domestic coke and the

establishing of by-product recovery coking plants in the large centres of population, and further study of the transportation of Alberta coal into Central Canada.

Parliament, on March 31, 1924, adopted a resolution reiterating the necessity of making Canada independent of the United States for its coal supply and providing that "the Government should immediately consider the institution of an all British and Canadian coal supply and that such a policy is both a social and economic necessity and in the best interests of the future of Canada".

As a result of these investigations, reports and resolutions, assistance was given for the first time to the westward movement of Nova Scotia coal. By P.C. 1537 on September 3, 1924, the sum of \$200,000 was voted and its expenditure authorized for this purpose. This Government assistance to the movement of coal, which was greatly expanded from 1928 on, is set forth in detail in the chapter of the report on Subventions and Other Aid. A further result of these reports was Tariff Memorandum No. 50 of May 14, 1925, which permitted a drawback of 99 per cent on bituminous coal when imported by proprietors of by-product recovery coke ovens and converted by such ovens into coke, the drawback not applying on coal converted at a gas retort plant. The same Memorandum levelled the tariff rates on bituminous coal. The history of tariff changes concerning coal is told elsewhere in this report.

On March 15, 1926, a Special Committee of the House of Commons was appointed to investigate the coal resources of Canada, and its report recommended trial shipments of Alberta "domestic" coal under the supervision of the Fuel Board by rail and lake to central Canada, to ascertain the possibilities of moving such coal in large volumes with modern loading and unloading facilities. It also recommended the enactment of legislation to encourage the production of domestic coke, co-operation with the provinces in establishing standards of quality and regulations governing the shipment and marketing of coal and coke, that some assistance be given to encourage the enlargement of markets for Maritime coal, that the duty on bituminous slack coal of 50 cents per ton be extended to anthracite small coal, and that the exemption from duty on foreign coal for bunkering ocean-going ships be withdrawn. It also recommended that coal handling facilities at Montreal, Toronto and Hamilton be improved, and that study be given by the Canadian National Railways to the possibility of materially increasing the average freight train-load, reducing the cost of the rail haul from Alberta to the Head-of-the-Lakes. This Committee also suggested that the Government might consider the renewal of the vote made in September 1924 to assist the rail movement of Canadian coal.

A few days after the appointment of this Committee a Royal Commission was appointed (by P.C. 505 on April 7, 1926) to investigate the grievances of the Maritime Provinces. Its report supported the recommendation of the Special Parliamentary Committee of 1926 that early consideration be given to the renewal of the subvention made in 1924 and payable to the railway companies, conditional on a reduction of the then existing rates for coal carriage. This Commission also recommended that practical steps be taken by the Federal authorities to encourage the building of plants for the coking of Canadian coal, and asked the Tariff Advisory Board to consider the question of the customs tariff on coal and coke.

A second report of the Dominion Fuel Board published in 1928 reviewed all of the activities of the Board up to that point and made a number of suggestions with respect to the problem of developing a Canadian fuel supply and of the utilization of fuels.

The results of these Committees and Commissions and the activities of the Dominion Fuel Board were threefold. Tariff changes were made and subventions on the movement of coal from East and West to central Canada were instituted and continued, as set out in detail in the chapter on Subventions and Other Aid.

Assistance was also given to the coking of Canadian coal by the Domestic Fuel Act (17 Geo. V. c. 52) which subsidized the building of several by-product coking plants, subject to the use of Canadian coal; P.C. 944 of April 26, 1932, and other Orders in Council which assisted the movement of Canadian coal for coking, to the extent of the difference in laid-down cost to the coke manufacturer; and the Act 20-21 Geo. V. c. 6 assented to on May 30, 1930, and hereinafter referred to as the Coke Bounties Act, which granted a bonus equivalent to the then existing tariff drawback on imported coal to persons using Canadian coal converted into coke for the smelting of iron. These Acts and Orders in Council are dealt with in detail in the chapters entitled Products and By-Products and Subventions and Other Aid.

During the remainder of the period prior to World War II Government activities were largely confined to these forms of aid, all of which were administered by the Dominion Fuel Board, and to continued activity in fuel testing and geological research by the Department of Mines and Resources. The Dominion Fuel Board throughout co-ordinated all Dominion Government activities with respect to coal. This period, including as it did some of the worst years of the depression, was marked by falling coal consumption and the offering of foreign coals at depressed prices. While this Board came into existence as a result of an expected coal shortage, its principal function soon became that of administering subventions for the purpose of assisting the Canadian producer to find markets for the coal that was produced. Its annual administration costs averaged approximately \$25,000.

Coal Control during and since World War II

As the position presently accupied by the Government of Canada in relation to the coal industry is based almost entirely on the overall control of the Canadian economy that was gradually developed during the war years, an understanding of this system of control in all its branches (and the reasons requiring it) is essential to an appreciation of the steps taken in relation to the coal industry during the war and the controls which are presently in effect.

The proclamation of war in September 1939 automatically revived the War Measures Act which had formed the legal basis for such controls as were instituted during World War I and which remained on the statute books as R.S.C. 1927 c. 206. It was recognized, however, that the probable requirements of highly mechanized warfare and the weaknesses that had become apparent in controls exercised during the last war required a much more rigid supervision of the economic life of the country, if Canada's part in this war should be fully effective.

The principal objects to be attained were two: first, the supply and proper distribution of materials essential to the successful prosecution of the war and, second, the equitable distribution at reasonable prices of essential civilian goods in short supply. It was important, in order that these objectives should be attained with the least possible adverse effect on the national economy, that inflation be avoided, and, as considerable buying of war supplies in the United States was inevitable, that non-essential purchases in that country be curtailed.

During the period of the war this involved the control and conservation of foreign exchange, the control of prices, control of wages and salaries, the rationing of civilian goods and a system of priorities concerning goods essential to the war effort, measures designed to make the most effective use of available manpower, taxing measures to meet the cost of war and to control inflation, and measures designed to maintain and increase the production of essential commodities.

As these controls were a gradual development during the earlier years of the war, it is proposed to deal chronologically with the principal steps taken, with particular reference to the measures giving jurisdiction over the coal.

industry. We have attempted in this history to deal only with the more important enactments and orders; it is not complete but does, we believe, give the minimum background necessary to an understanding of what was done. Steps actually taken in relation to the coal industry in execution of such authority will be dealt with later.

(a) CHRONOLOGICAL DEVELOPMENT OF GENERAL CONTROLS

1939—War Commences; Coal Administration Established

Parliament was summoned immediately on the outbreak of war and promptly enacted the Department of Munitions and Supply Act (3 Geo. VI c. 3), which Act established the department of that name, and to supplement the powers of the executive derived from the War Measures Act gave its Minister power to mobilize, conserve and co-ordinate the economic and industrial facilities available in respect of munitions, supplies and defence projects. He was given power to purchase and acquire munitions, to give priority to certain work, and to appoint persons to control such industries. This Act was proclaimed April 9, 1940. At first enacted for three years only, this limitation was removed in 1943 by 7 Geo. VI c. 8.

At the same session, by 3 Geo. VI c. 6, the Income Tax Act was amended, increasing the tax on corporation income from 15 per cent to 18 per cent, and, by 3 Geo. VI. c. 4, the Excess Profits Tax Act was enacted, imposing an additional tax of 50 per cent on profits in excess of those of the "standard period", meaning the average profits of the years 1936 to 1939 inclusive.

Under the War Measures Act meanwhile, by P.C. 2483 on the third day of September, 1939, the Defence of Canada regulations were issued, delegating to various departments and officials wide powers over persons and properties, and on the same day (by P.C. 2516) the Wartime Prices and Trade Board was established under the Department of Labour with power to fix minimum prices and margins of profit for necessities, to investigate costs, to take possession of supplies unreasonably withheld from the market, to ration purchases and sales, and to license persons producing or dealing in necessities and to compel them to provide full details of their operations to the Board. On September 14 a memorandum was drawn up by the Secretary of the Dominion Fuel Board for the Wartime Prices and Trade Board recalling the fuel difficulties of the last war and outlining a programme of action. This resulted in P.C. 3117, October 18, 1939, under which J. McGregor Stewart, K.C., was appointed Coal Administrator "to be responsible in co-operation with the industries and trades concerned, and under the direction of the Board, for the conduct of negotiations with the United Kingdom authorities for the export of coal and other solid fuels to Canada; in co-operation with the provinces concerned for maintaining and stimulating where necessary the production of Canadian coal and other solid fuels; for the supervision of the purchase, shipment, distribution and allocation of coal, coke and other solid fuels, whether domestic or imported, and for such other duties as may be assigned to him by the Board".

Order in Council P.C. 2716 dated September 15, 1939, established the Foreign Exchange Control Board and granted it power to establish rates of exchange on foreign currency. The Board on the same day restricted the export of funds, and for the purpose of permitted transactions fixed the premium payable for United States dollars at 11 per cent.

On November 7 the first step was taken to bring labour disputes, theretofore principally a matter of provincial concern, within the ambit of Dominion jurisdiction. P.C. 3495 directed that the Industrial Disputes Investigation Act (R.S.C. 1927 c. 112) which, except where it had been adopted by provincial legislation, then applied only in the case of industries of an inter-provincial nature, such as railways, should specifically apply in respect of any dispute

between employer and employed on defence projects, or in the case of disputes in concerns engaged in the production or distribution of munitions or supplies. It defined "supplies" to include any commodity which, in the opinion of the Minister of Labour, would be essential for the needs of the Government or of the community in war.

On November 15 a Transport Controller was appointed by P.C. 3677 and authorized to achieve co-ordination of effort in the solution of transportation problems; and on December 20 (by P.C. 4251) the Canada Shipping Board was established and given wide powers over all Canadian shipping, including the responsibility of deciding what materials should be granted shipping space available, and in what order. Both orders were issued under the authority of the War Measures Act, the first being administered by the Department of Transport, the latter by the Department of Trade and Commerce.

1940—First Steps Taken in Manpower Mobilization and Wage Control

At the first session of Parliament in 1940 three statutes were passed having considerable bearing on the control of the Canadian economy. By 4 Geo. VI c. 41, Sec. 11, Section 88-A of the Special War Revenue Act was enacted, imposing a war exchange tax of 10 per cent of the value for duty on all goods imported into Canada, payable by the importer, but excluding goods imported under British tariff or trade agreements with other countries. Sub-section 3 of this section provided that no person should take advantage of the tax imposed by this section to increase the price of goods by an amount greater than justified by any increase in cost properly arising from such tax, and that the Governor in Council might authorize the Wartime Prices and Trade Board to take such steps as might be necessary to prevent such unauthorized increases.

The Excess Profits Tax Act was amended by 4 Geo. VI c. 32 to impose a special tax of 12 per cent on all profits and to increase from 50 per cent to 75 per cent the tax on profits in excess of those earned during the standard period, or such larger "standard profits" in the case of depressed industries as the Board of Referees appointed thereunder might determine.

By 4 Geo. VI c. 13 to grant additional emergency powers, the National Resources Mobilization Act was enacted giving the Governor in Council power to do and authorize such acts and things, and to make such orders and regulations requiring persons to place themselves, their services, and their property at the disposal of the Crown "as might be deemed necessary or expedient for securing the public safety, the defence of Canada, the maintenance of public order or the efficient prosecution of the war, or for maintaining supplies or services essential to the life of the community". This Act was limited in effect "during the continuation of the state of war now existing".

To help conserve American exchange, on April 30 by P.C. 75/2980 authority was granted for the acceptance of export selling prices as the basis for valuation for duty purposes on goods from the United Kingdom.

In the field of labour control, on June 19, 1940, there was established the National Labour Supply Council consisting of employers' and workers' representatives, to advise on matters touching labour supply for industry which might be referred to it by the Minister. On the same day by P.C. 2685 the Government issued a declaration of principles for the regulation of labour, stating that fair and reasonable standards of labour and working conditions should be recognized; that where adjustments were necessary by reason of war conditions they might be in the form of bonus payments; and that established safeguards and regulations for the safety of the workers should not be relaxed. The policy of collective bargaining was affirmed, and it was agreed that each collective agreement should have machinery for the settlement of disputes. It further declared that there should be no interruption of production by reason of strikes or lockouts, and urged that in disputes the assistance of the Government conciliation services should be sought.

Up to this time co-operation between the major agencies within the Department of Munitions and Supply was on an informal basis, but with the increase in war production and the development of shortages it became necessary to closely integrate the efforts of all such agencies. Consequently, by P.C. 2715 of June 24, 1940, the Wartime Industries Control Board was established and Controllers appointed over the major industries involved.

On July 20, 1940, the Coal Administrator's powers were extended by P.C. 3298 to give him authority to purchase and distribute solid fuels and to prescribe the prices to be paid therefor.

The first positive step in the control of the labour situation was the approval of P.C. 6286 on November 7, 1940, which prevented employers from soliciting persons to enter their employment if at the time they were engaged in the manufacture of war equipment or supplies. Earlier that summer the National Registration had provided the Government with a reasonably accurate picture of the special skills possessed by the Canadian people.

During the period since the commencement of the war, living costs had risen about 7 per cent and a corresponding increase in wages was required. As a result, P.C. 7440 was approved on December 16, 1940. It provided that the wage rate level paid by the employer during the period 1926-1929 (or any higher levels established prior to December 16, 1940) should be considered fair and reasonable except where a Board of Conciliation might find such levels to be unduly low. It further provided that a wartime cost of living bonus should be paid, generally of \$1.25 per week for each 5 per cent increase in the cost of living according to the Bureau of Statistics cost of living index. This order was not mandatory, but was issued only for the guidance of Boards of Conciliation that might be set up under the Industrial Disputes Investigation Act.

At about this time a further session of Parliament enacted the War Exchange Conservation Act (4-5 Geo. VI, c. 2) which prohibited the importation into Canada of certain goods and removed or reduced the customs duties on certain specified goods when imported from the United Kingdom. By this Act the duty was removed on bituminous coal when so imported. Complementing that enactment, P.C. 7373 of December 13, 1940, gave the Wartime Prices and Trade Board the same powers with respect to goods specified in the schedules to that Act and with respect to persons dealing in such goods as were conferred on the Board under the regulations with respect to the necessities of life.

By the same session of Parliament (4-5 Geo. VI, c. 115) the Excess Profits Tax of 12 per cent was increased to 22 per cent of total net income apart from the special tax on excess profits.

1941—Wages and Prices Frozen; Import Subsidies Commence

The increasing demands of war production during the year 1941, the gradual development of the manpower shortage and the shortages in essential commodities, were reflected in increased measures of control, and by the end of 1941 the pattern of wartime control of the economic life of Canada was reasonably well established.

Up to that time the Controllers of the Department of Munitions and Supply dealt informally with one another and with the industries involved in the matter of priorities, but as production expanded and as shortages became more serious the Priorities Branch was created by P.C. 1169 on February 20, 1941. Later, on October 31, 1941, the Shipping Priorities Committee was created, and the Shipping Board thereafter allocated shipping space on the basis of the priority ratings given by this Committee, its decisions in turn being based on the recommendations of the Wartime Industries Control Board.

As any work stoppage in the coal mines would threaten the production of essential war materials, the Minister on March 31, 1941, declared coal to be "supplies" within the meaning of P.C. 3495, thereby making the Industrial

Disputes Investigation Act applicable to any dispute. P.C. 4061, approved on June 6, 1941, declared undertakings for the mining of coal to be essential services within the meaning of the Defence of Canada regulations, thereby placing in the civilian authorities power to enforce the regulations prohibiting the doing of any act with intent to impair the efficiency or impede the working of any undertaking engaged in the performance of such services. On the same day (by P.C. 4020) it was ordered that when any strike or lockout occurred or seemed imminent, and whether or not a Board of Conciliation was requested, the Minister of Labour might refer the dispute to a tribunal designated The Industrial Disputes Inquiry Commission to make a preliminary investigation and endeavour to arrive at an adjustment.

About this time it became apparent that the duplication of endeavour by the Coal Administration and the Dominion Fuel Board was creating administrative difficulties, so on June 25, 1941, by P.C. 27/4600 the duties, functions and establishment of the Dominion Fuel Board were transferred to the Coal Administration for the duration of the war, the Coal Administrator being authorized to administer, under the Wartime Prices and Trade Board, all of the Orders in Council dealing with subventions, the Domestic Fuel Act and the Coke Bounties Act. On August 6 of that year by P.C. 19/6016 the appropriations granted for the purpose of administering these Acts and Orders in Council were transferred from the Minister of Mines and Resources to the Minister of Labour, with power to the latter to transfer to the Wartime Prices and Trade Board all or any of the functions of the Dominion Fuel Board.

On August 14 by P.C. 6332 the Wartime Prices and Trade Board was transferred from the Department of Labour to the Department of Finance, and thereafter the establishment of the Dominion Fuel Board and the Coal Administration were under the jurisdiction of that Department.

It being apparent about this time that the work of the Wartime Prices and Trade Board and the Wartime Industries Control Board should be more closely integrated, P.C. 6834, approved August 28, 1941, issued new Wartime Prices and Trade Board regulations; and P.C. 6835, approved August 29, 1941, issued new Wartime Industries Control Board regulations. Under these, the Chairman of the W.I.C.B. became a member of the Wartime Prices and Trade Board, the Chairman of the Wartime Prices and Trade Board became a member of the Wartime Industries Control Board, and individual Controllers became *pro tem* members of the Wartime Prices and Trade Board when any action affecting their field of control was under discussion. From that time forward the two Boards worked closely together, and in the course of time virtually all of the Controllers were appointed Administrators under the Wartime Prices and Trade Board and all orders issued by the Controllers were required to be approved by the Chairman of the Wartime Prices and Trade Board. Under the new Wartime Industries Control Board regulations, every Controller was given power to fix prices and margins of profit.

The first restriction on the right to strike was imposed on labour by P.C. 7307 on September 16, 1941. It provided that whenever employees desired to strike or take a strike vote they must notify the Minister of Labour of their desire, and if he was of the opinion that a cessation of work would interfere with the efficient prosecution of the war he could direct a strike vote to be taken under the supervision of the Department. Unless a majority of those entitled to vote cast ballots in favour of the strike, it was an offence for an employee to go on strike.

On September 17 the Minister of Finance assigned to the Wartime Prices and Trade Board the power and duty of computing and authorizing payments claimed under the Coke Bounties Act and subventions.

In spite of all attempts to maintain prices at existing levels, wages were gradually moving upward, necessitating increases in commodity prices. Consequently, on October 24, 1941, P.C. 7440 was replaced by the Wartime Wages and Cost of Living Order P.C. 8253, which stabilized all wages at the level in effect on November 15, 1941. This order also established the National War Labour Board and five regional Labour Boards, later increased to nine, of which the chairman was to be in each case a provincial cabinet minister having jurisdiction over labour. The National Board was given authority to increase the basic scale of wages where they were lower than prevailed in the locality and to defer the cost of living bonus where wages were higher than the average. This order maintained the cost of living bonus plan as in P.C. 7440 but was made mandatory on all employers in essential industries, and all employers having fifty or more employees. It was later extended by P.C. 9514 on December 5, 1941, to all industrial employers. As a natural complement to this order, the Wartime Salaries Order (P.C. 9298 of November 27, 1941) stabilized managerial and executive salaries at the levels existing on November 6, 1941. On December 17 the Commissioner of Income Tax was appointed Salaries Controller with power to administer this order.

Up to this point maximum prices had been fixed on very few commodities, the main activities of the Board consisting of efforts to provide an adequate and regular flow of civilian supplies to the Canadian market. But it became apparent that unless rigid measures of control were exercised prices would spiral to dangerous levels. On November 1, therefore, by P.C. 8527 the first Maximum Prices Regulations were established by the Wartime Prices and Trade Board, providing generally that maximum prices for any and all commodities should be the maximum prices in effect during the period from September 15 to October 11, 1941, designated the "basic period"; and that any differences in prices customarily allowed to different classes of buyers, or for different quantities, or under different conditions of sale resulting in a lower net price per unit, should be continued. On the same day by P.C. 8528 the powers of the Wartime Prices and Trade Board were enlarged and a statement of policy was issued, giving an outline of methods by which it was proposed to control prices.

The Wartime Prices and Trade Board Order No. 76 of December 16, 1941, amplified the meaning of "maximum prices" and gave administrators power to specify any price as representing the maximum price under the regulations, to authorize sales at higher levels and to require sales and deliveries at prices that they might determine. This order was later modified on June 30, 1942, but generally speaking the powers of the administrators remained about the same.

About this time it was seen that with rising prices of commodities in foreign countries, particularly in the United States, it would be impossible to hold the general price level in Canada without severe restriction on imports or the granting of subsidies to the importer of foreign goods. It was, therefore, decided to embark on an import subsidy plan, and a preliminary statement was given by the Wartime Prices and Trade Board on December 2 advising that subsidies would be paid on all imported eligible goods, including coal and coke when not used in industry, where prices had risen significantly above the levels obtaining in the basic period. It was decided that the import subsidy and other subsidies which might be instituted should be administered by a separate corporation, and on December 17, 1941, by P.C. 9870, Commodity Prices Stabilization Corporation Limited was incorporated for the purpose of "facilitating under the direction of the Wartime Prices and Trade Board the control of prices of goods, wares and merchandise in Canada", and the Board was authorized to delegate to the company such of the powers of the Board as it might deem advisable.

To help facilitate the importation, under the ceiling, of goods in short supply, P.C. 9888 issued on December 19 suspended, except in respect of fresh fruits and vegetables, the special or dumping duties as provided under Section 6

of the Customs Tariff, and on the same day P.C. 9889 authorized the Minister of National Revenue to accept export selling prices rather than fair market value in the countries of origin as the basis for valuation for duty purposes in respect of goods originating in countries other than the United Kingdom, this principle having been made applicable to British imports since April, 1940.

1942—Selective Service Instituted; E.C.P.B. Established; Excess Profits Taxed at 100 per cent

It became apparent about this time that further restrictions on production would have to be enforced in order to make the best use of available manpower and still maintain price ceilings. This resulted in Order No. 82 of the Wartime Prices and Trade Board dated January 6, 1942, giving each administrator power to prescribe or limit the kinds, qualities, sizes and quantities of any goods that might be manufactured or distributed by any person, and to prohibit manufacture or distribution except in accordance with such limitations.

As a further step in controlling domestic prices, on January 20, 1942, by P.C. 62/450 the Minister of National Revenue directed that under authority granted by the Customs Act import and excise duties and taxes imposed in any country should be disregarded in estimating the value for duty of goods imported into Canada.

The manpower shortage was by this time becoming quite serious, and in March of 1942 several Orders in Council were approved, which together represented a fairly comprehensive policy concerning manpower. A Director of National Selective Service was appointed; provision was made for taking a manpower inventory; a list of restricted occupations was made which no physically fit man of military age could enter without permission; persons engaged in agriculture were prohibited from transferring to other occupations; and arrangements were made for the transfer of technical men to war jobs. In June, Control of Employment Regulations were issued which authorized the Director of National Selective Service to issue orders on the approval of the Minister of Labour, prohibiting the engagement of workers in any specified class except through the local employment office of the Unemployment Insurance Commission.

About this time new Maximum Prices Regulations (P.C. 5109, June 16, 1942) and a new Wartime Wages Control Order (P.C. 5963, July 10, 1942) were issued, but no important changes in the principles governing the preceding orders were made. It might be pointed out, however, that the Wartime Wages Control Order was confined in its operations to persons earning less than \$175.00 per month or, if more than that, to persons who were over the rank of foreman or comparable rank. Persons earning over \$250.00 per month were deemed to be over the rank of foreman and were subject to the Wartime Salaries Order.

A new order was issued during this summer clarifying and enlarging the powers of the Transport Controller to enable him to exercise full control over all railway equipment. This order (P.C. 4487) was dated June 9, 1942. On July 31, P.C. 6785 similarly enlarged the powers of the Canada Shipping Board.

On August 26, 1942, by P.C. 7595 the National Selective Service Regulations were passed, consolidating all orders concerning manpower which had been made up to date. They gave the Director power to classify occupations according to the degree of essentiality to the war effort, they controlled advertising for employment, provided a seven days' notice for termination of employment, and gave the National Selective Service officers power to direct the acceptance of employment. These were supplemented later in the year by the Labour Exit Permit Order, which required permission to leave the country for the purpose of taking employment elsewhere.

Another important order was issued August 26, 1942, P.C. 7475, outlining the powers of the Commodity Prices Stabilization Corporation, gave the corporation wide power, amongst other things, to investigate costs.

On September 8 (effective November 2) Wartime Prices and Trade Board Order No. 184 took one further step in the over-all control of business by prohibiting the commencement of new businesses, or any change in the type of business carried on, except by permission of the Board.

By a statement of policy dated October 6, 1942, the Wartime Prices and Trade Board amplified its original statement, reiterated the principle of rateable allocation by suppliers of all goods in short supply amongst established customers to whom they sold merchandise in 1941, and pointed out that they had the power to direct any supplier of goods to make delivery of such goods to any designated person. By a further statement on October 21, the Board stated that its objective was that the use of human and material resources in the production of civilian goods should be systematically reduced, and that the Board would proceed by way of control of production, supply and distribution, with the elimination of non-essential lines and the standardization and simplification of existing lines. It also forecast the extension of consumer rationing, and stated that the organization of local ration boards, in co-operation with the municipal authorities, was proceeding.

Towards the end of 1942 it became apparent that with the increased industrial activity and consequent increased coal consumption in both Canada and the United States it would be necessary to take some steps to increase the production of Canadian coal, and on November 23 action was taken by setting up (under P.C. 10674) the Emergency Coal Production Board headed by the Coal Administrator and charged with the responsibility for "taking all such measures as are necessary or expedient for maintaining and stimulating the production of Canadian coal". The subsequent activities of this Board will be dealt with later in this chapter.

Parliament, during this year, took a further step in the control of profits by amending the Excess Profits Tax Act (6 Geo. VI, c. 26) to increase the rate of tax on profits in excess of "standard profits" from 75 per cent to 100 per cent.

1943—Coal Control Established; Employment in Coal Mines Made Compulsory

In January of this year the National Selective Service regulations were consolidated, and all existing Orders in Council dealing with the subject were repealed. The regulations issued by P.C. 246 on January 19, embody in the main, the policy established the previous summer and which existed up to the close of the war with regard to civilian manpower, but are in much greater detail than the earlier order. These regulations directed the Minister of Labour "to take such steps as may be necessary to ensure the efficient use of manpower", though the powers of compulsion vested in him were to be exercised only as a last resort. They were administered through the Director of Selective Service with an Advisory Board consisting of representatives of government departments and labour. Local administration was carried on through National Selective Service officers situated in the Employment and Selective Service offices throughout Canada. Under these regulations, employers who expected a change in labour requirements, or who had more employees than necessary for immediate needs, were obliged to notify the local office. Employment could not normally be terminated by either employer or employee without seven days' notice; permits were required before an employee could seek, be interviewed for, or be offered employment; and permits were required by employer or worker wishing to apply for employees or employment. Selective Service officers could direct any person to accept suitable employment, or request any employed person to change to more important work.

In connection with Coal Administration, it became apparent early in 1943 that the main problem was no longer a matter of price regulation and equitable distribution, but was a problem of supply; accordingly jurisdiction over the production and supply of coal, coke and wood fuel passed from the Wartime

Prices and Trade Board and the Department of Finance into the hands of the Wartime Industries Control Board of the Department of Munitions and Supply on March 5, 1943. P.C. 1752, effecting this transfer, created a new Coal Control which assumed the powers, duties and functions of the Coal Administration, including the functions of the Dominion Fuel Board. Mr. Stewart became Coal Controller, but in the field of price control he remained Coal Administrator under the Wartime Prices and Trade Board. The staffs of Coal Administration and of the Dominion Fuel Board were transferred to the Department of Munitions and Supply. Regulations set forth in this order gave the Controller power to appropriate, produce and deal in, prohibit or regulate any dealing in, and prohibit or ration the consumption of coal, coke and wood fuel. By P.C. 4362 on May 28, Coal Control, which theretofore handled problems of wood fuel as well as coal, was relieved of this responsibility and a new Wood Fuel Control was established.

The supply situation at this time became so important that the Prime Minister declared in the House of Commons a state of national emergency in regard to coal, and on May 17, 1943, P.C. 4092 was passed, providing that no person with two years or more experience in coal mining might remain in any other employment, the men thus released to be returned to the mines by Selective Service. The order also provided that no coal miner could leave his job, nor could a mine operator dismiss a miner without permission from the Selective Service office. Furthermore, no miner could join the Armed Services, either by enlistment or draft, prior to January 1, 1944. It also lowered the age of employment in the coal mines.

In the field of wage control, P.C. 2370 on March 23, 1943, gave the War Labour Boards authority to use a cost of living index earlier than the date of the last pay raise for calculation of the cost of living bonus, where it was necessary to equalize wages paid in a particular industry or locality.

On July 6, 1943, by P.C. 5403, E. J. Brunning was appointed Coal Controller on the resignation of J. McGregor Stewart, K.C.

The fuel supply situation continuing to be critical, in August, 1943, a Director of Conservation was appointed, and Order in Council P.C. 6373 issued on August 11 made it an offence to waste fuel.

On October 1, 1943, P.C. 7002 provided for the appointment of Regional Solid Fuel representatives in each of the provinces with authority to investigate and to keep the Controller informed as to the supply and distribution of solid fuel and the solid fuel requirements in their respective provinces.

The cost of living bonus was merged with the basic wage rates by P.C. 9384 on December 9, 1943, and under that order the War Labour Boards could authorize or direct employers to increase a rate range only to rectify a "gross inequality or gross injustice".

1944.—Wartime Labour Relations Board Established

In 1944 the only new order of particular importance was P.C. 1003 dated February 17, which established the Wartime Labour Relations Board with power over all industries essential to the efficient prosecution of the war, including mining, and all other industries in such provinces as might adopt the order. This order provided for the certification of bargaining representatives, the negotiation of collective agreements, and grievance procedure to be followed, superseding in all these spheres the Industrial Disputes Investigation Act or the equivalent provincial labour legislation in provinces, or with respect to industries, where it was made applicable. The order made slowdowns illegal, and it made strikes illegal pending the election of bargaining representatives and until fourteen days after the conciliation officer appointed by the Board had made a report.

General Position at End of the War

The general position thus established continued until the end of the war. The Wartime Prices and Trade Board, administered by the Department of Finance, had the problem of controlling distribution of civilian goods and of maintaining prices so far as possible at the levels reached during the basic period. This involved in many cases the payment of subsidies, both domestic and import, through Commodity Prices Stabilization Corporation Limited. It also involved, in the case of coal, subsidies on production, administered under the Department of Munitions and Supply by the Emergency Coal Production Board, although these were partly for the purpose of encouraging production. By way of assistance in this direction, adjustments of tariffs and exemption from the war exchange tax were sometimes used. Further assistance in this direction was given by the Wage and Salaries Control Orders, the one administered by the Minister of Labour, the other by the Income Tax Division of the Department of National Revenue, which attempted to keep wages and salaries at the levels attained during the late 1941 levels.

The Wartime Industries Control Board and the various controls administered by the Department of Munitions and Supply were principally concerned with the supply of war materials, but due to the fact that many commodities were common to both military and civilian requirements and that availability of supplies had much to do with the control of prices a considerable amount of overlapping with the functions of the Wartime Prices and Trade Board was inevitable.

With few exceptions, all orders and regulations dealing with prices were issued under authority derived from the War Measures Act; measures dealing with supply were enacted under the Department of Munitions and Supply Act and the War Measures Act; matters dealing with wages and salaries under the War Measures Act; and with manpower under the War Measures Act and the National Emergency Mobilization Act.

Autumn 1946—Economic Controls Still in Effect

Since the close of the war there has been a gradual retrenchment in the entire field of economic control. The Wartime Industries Control Board went out of existence on December 1, 1945, by P.C. 7516 of November 29, as part of this retrenchment policy, and such Controllers as are still operating report direct to the Minister.

For all practical purposes National Selective Service is inoperative, although notice of termination of employment and labour exit permits are still required and some provisions are still in effect for reporting changes in employment. This was a gradual development between May 8 and the end of the year 1945. The order providing for compulsory employment in the coal mines was rescinded December 21, 1945, by P.C. 7430.

The Emergency Coal Production Board was abolished on April 30, 1946, by P.C. 1684, although its principal function (that of subsidizing production under the price ceiling) was transferred to, and as this is written is exercised by, the Commodity Prices Stabilization Corporation.

Price control, while no longer in effect with respect to certain items, still applies to coal and coke, and coal imported for domestic purposes is still subsidized. The War Exchange Tax was repealed by 9-10 Geo. VI, c. 30, effective October 13, 1945, and this, coupled with the return of the Canadian dollar to a position of parity with the United States dollar on July 5, 1946, meant some reduction in the amount required for import subsidies.

Wage and salary controls* are still in effect, although by P.C. 2432 of June 20, 1946, War Labour Boards were relieved from the necessity of applying

* Wage and salaries controls have been discontinued since this was written.

the "gross inequality or gross injustice" principle theretofore in effect, and can now grant increases to the extent that the Board finds that it is just and reasonable that increases should be given.

The War Measures Act, under which most of the wartime controls were instituted, was superseded by the National Emergency Transitional Powers Act (9-10 Geo. VI, c. 25) which was assented to on December 18, 1945. This Act provided for the continuation of the orders and regulations made pursuant to the War Measures Act and gave the Governor in Council power to "authorize such acts and things and to make from time to time such orders and regulations as he may by reason of the continued existence of the national emergency arising out of the war against Germany and Japan deem necessary for the purpose, amongst other things, of facilitating the readjustment of industry and commerce to the requirements of the community in time of peace, and maintaining, controlling, and regulating supplies and services, prices, transportation, the use and occupation of property, rentals, employment, salaries and wages, to ensure economic stability and an orderly transition to conditions of peace". This statute officially declared, for the purposes of the War Measures Act, the end of the war against Germany and Japan, but this declaration does not for other purposes officially terminate the war and does not, therefore, apparently affect the continued validity of the National Resources Mobilization Act or the control provisions of the Department of Munitions and Supply Act. The Emergency Powers Act will expire on December 31, 1946, or, if Parliament does not meet during November or December of that year, on the fifteenth day after Parliament meets in 1947. If it is not re-enacted, extended, or superseded by other legislation, practically all of the price controls and price subsidies will disappear.

The Department of Reconstruction and Supply Act enacted at the same session (9-10 Geo. VI, c. 16) repealed and re-enacted relevant sections of the Department of Munitions and Supply Act, redefining "supplies" to give the Minister virtually the same powers as were exercised in wartime over anything "which in the opinion of the Minister is, or is likely to be, necessary for the needs of the government of the community in war or for reconstruction". Under this Act most of the problems of supply, as distinct from price, might by proper orders and regulations continue to be met, should the Emergency Powers Act not be re-enacted.

(b) ACTIVITIES OF COAL ADMINISTRATION AND COAL CONTROL

As indicated in the foregoing history of wartime economic controls, the Coal Administrator was appointed shortly after the outbreak of the war as an official of the Wartime Prices and Trade Board. At first responsible to the Minister of Labour and later, through the Board, to the Minister of Finance, his first concern was the equitable distribution of available coal supplies and the maintenance of reasonable prices, and he was granted wide powers to achieve these objectives. The Dominion Fuel Board, previously administered by the Department of Mines and Resources, was transferred to the Wartime Prices and Trade Board and came under his jurisdiction. The progressive increase in coal consumption both in Canada and the United States, and the dependence of war production on coal, eventually made supply rather than distribution or price the important problem. This led first to the establishment on November 23, 1942, of the Emergency Coal Production Board, and the following spring to the transfer of all matters concerning the supply of coal, including the Emergency Coal Production Board, to the Department of Munitions and Supply and to the appointment of the Coal Administrator as Coal Controller and a member of the Wartime Industries Control Board. On April 30, 1946, the Emergency Coal Production Board was wound up, and its function of assisting operators to continue production to enable sale under the ceiling price was exercised thereafter by the Wartime Prices and Trade Board through Commodity Prices Stabilization

Corporation Limited. As problems of supply, distribution and price were so closely related and as Coal Control in many respects simply continued the work begun by the Coal Administrator, it is proposed to deal with their activities together under the various classifications into which their duties fell. Shortly stated, these activities consisted of a continued effort to adjust production and imports to wartime requirements, to maintain a fair and just price within the policies of the Wartime Prices and Trade Board, and to provide equitable distribution of available supply. They might be classified as follows:

- (1) Coal distribution and the supply of United States coal.
- (2) Price control measures other than subsidies.
- (3) Manpower for the mines and coal deliveries.
- (4) Coal conservation.
- (5) Price increases resulting from wage increases.
- (6) Import and domestic subsidies; Commodity Prices Stabilization Corporation Limited.
- (7) Production subsidies, loans and grants; the Emergency Coal Production Board.
- (8) The Hamilton Coke Ovens.

(1) *Coal Distribution and the Supply of United States Coal*

At least until the formation of the Emergency Coal Production Board, the principal problem with which the Administrator had to deal was the distribution of coal. The gradual increase in war production, the establishment throughout the country of military camps which used up to one and a half million tons per year, the problem of shipping on the Atlantic Ocean and on the St. Lawrence, and the shifts in population caused by the war, changed considerably the normal flow of coal from producer to consumer. In peacetime, a large proportion of the Nova Scotia output was carried to the St. Lawrence markets by fast vessels with facilities for rapid loading and discharge. With the gradual requisitioning of these vessels by the Admiralty and the substitution of slower vessels, and later the submarine campaigns, it became increasingly difficult to arrange for the water movement of Nova Scotia coal to central Canada. At the same time, the consumption of coal increased in the Maritimes. Railway consumption in the eastern provinces doubled from 1939 to 1944, and the expansion of the steel industry at Sydney increased the local demand for coal. These factors, together with the decrease in production in that field and the substitution, in part at least, of local bituminous coal for British anthracite, resulted in the movement of Nova Scotia coal on the St. Lawrence falling from three and a half million tons in 1939 to less than half a million tons in 1945.

An attempt was made to offset these decreases by the movement of western coal into central Canada. Shipments of this coal expanded to over one million tons in 1941 but as the strain on transportation facilities increased and as the coal requirements of the western provinces and the northwestern States grew, these shipments into Ontario gradually declined.

Meanwhile the demand for coal in the industrial provinces of Ontario and Quebec was increasing rapidly, and as the supply of Canadian coal diminished increasing quantities of United States coal both for domestic and industrial purposes were required. Up to the end of 1942 there was no particular difficulty in procuring sufficient United States industrial coal, though full advantage had to be taken of the navigation season on the Great Lakes and the practice of stocking coal on the docks and in the industrial plants had to be encouraged by the Administrator. In the field of domestic coal more difficulty was encountered, for the withdrawal of Scotch and Welsh anthracite from the markets caused a corresponding increase in the consumption of United States anthracite which was in short supply.

During that period the Administrator's chief problem was the diversion of existing supplies to points where temporary shortages existed. In order effectively to perform this function, full information as to production, supply and requirements both as to quantity and grade of coal was necessary. The first step taken to this end was the approval of P.C. 3470 on November 2, 1939, authorizing the Wartime Prices and Trade Board to require that licences be obtained by all persons dealing in coal and coke. This was followed on November 7 by Administrator's Order No. 1 requiring all persons licensed to report stocks on hand or in transit. The problem of making available supplies of particular grades of coal to areas and industries where the need was greatest was solved mainly by the co-operation of the producers, distributors and principal consumers, although the Administrator increasingly used his powers to direct individual consumers to take their coal from designated areas.

Gradually, however, the picture changed and supply became more and more important, and with the formation of the Emergency Coal Production Board in November 1942, the extremely severe winter of 1942-43, and the establishment of Coal Control in March 1943, more complete supervision over the coal industry was assumed.

The year 1943 was marked by a continually increasing demand for coal and by strikes in the coal fields of both Canada and the United States. Scattered strikes, mostly local and in many cases unauthorized, occurred in both eastern and western Canada, and in April 1943 a strike of larger proportions occurred in the bituminous mines in the United States. Unsettled conditions in both the bituminous and anthracite fields of the United States dragged on from month to month, with small work stoppages occurring from time to time. The activities of Coal Control and its American counterpart, the Solid Fuels Administration, were closely co-ordinated, and to make this liaison effective a number of Coal Controller's Orders were issued, many of which were suspended and re-imposed as conditions required.

Following the American strike, on April 30, 1943, Order No. 4 froze shipments of bituminous coal in transit and gave the Controller power to direct their disposal. It also prohibited deliveries of bituminous coal to Ontario and Quebec dealers, except as directed by the Controller. This order was suspended on May 3. Order No. 4B dated June 1 prohibited, except by permit from the Controller, all deliveries of anthracite except in one ton lots or to buildings or plants with less than two tons on hand, and deliveries of bituminous coal except to consumers whose annual consumption was 25 tons or less or where emergency conditions existed.

For the purpose of facilitating even distribution of coal supplies for domestic heating in Ontario and Quebec, Order No. 5 issued on July 5, 1943, established classifications of coal, required a system of reporting by consumers, and curtailed deliveries to one-half the year's requirements unless the householder agreed to use industrial coal or coke for domestic heating to the extent of one-quarter of his total requirements. This order was amended on September 16 to give priority in deliveries to persons with less than one-quarter of their annual requirements on hand.

A number of orders were made during the summer and fall of 1943 by the United States Solid Fuels Administration, establishing priorities with respect to distribution in the United States and for the purpose of moving the greatest possible amount of coal during the season of lake navigation. As we were largely dependent on American supplies, similar orders were issued here. Order No. 7 dated August 26 required purchasers of United States bituminous coal to notify the Controller of the amount by which their requirements for the ensuing winter exceeded their stocks on hand and on order, so that the Controller could make arrangements for the necessary deliveries with the assistance of the American

authorities. This order required commercial dock operators to deliver to the most necessitous customers and required consumers who received coal by rail to use their stockpile so far as possible.

Order No. 8 of September 27, 1943, provided for equitable distribution amongst retailers during the ensuing winter by regular monthly shipments, so far as possible, of available supplies of anthracite. Except in areas with increased population or where shortages of other fuels existed, deliveries were limited to 90 per cent of the deliveries made during the "standard period" of April 1, 1942, to March 31, 1943.

Deliveries to domestic consumers were restricted by Order No. 10 of November 2, 1943, to those who had less than fifteen days' supply on hand, which order required the consumer to accept any available type of coal suitable to his burning equipment. This order was suspended in the four western provinces on January 26, 1944.

On November 30, 1943, again to adjust Canadian distribution to American supply, Order No. 11 (called the Import Bituminous Coal Stock Equalization Order) imposed limitations on orders and deliveries of such coal at a certain percentage of the monthly requirements depending on the number of days' supply on hand according to a stock limitation table set out in the order, and required notification of all orders to Coal Control. On the same day Order No. 12 instituted a system of priorities in the delivery of domestic coal to private residences to provide first for deliveries of a minimum of fifteen days' supply to consumers with less than seven days' supply on hand, and to prohibit delivery of more coal than sufficient to supply domestic requirements to May 1, 1944.

The years 1944 and 1945 saw no change for the better in the coal situation. Production in the Maritimes continued to decrease and, while partially offset by increased production in the west, assisted by the Government-sponsored strip mines in Alberta, the total Canadian production continued to fall from the maximum levels which had been reached in 1942. Consumption meanwhile, both in Canada and the United States, continued at a high level. Reserve stocks in industrial plants and at commercial docks gradually diminished; the manpower situation both in the mines and for coal deliveries became more critical, and shortages of shipping space and railway cars became more acute. These factors combined to require even closer supervision by the Coal Controller.

From the end of 1943 until March 30, 1946, a series of orders were made and subsequently rescinded. The general pattern remained about the same. Industrial consumers and persons maintaining storage docks were encouraged to obtain all the coal possible during the summer months when advantage could be taken of lake navigation, and householders were encouraged to obtain their winter's supply as far as possible in advance. Shortages of anthracite were compensated for, in part, by the use of bituminous coal and coke in household burning equipment; and industries were obliged to use their stockpiles during periods of extremely short supply. Stock limitation tables for industrial consumers and percentages of bituminous coals required to be taken with purchases of anthracite were varied from time to time, depending on the season and the present and prospective supply and requirements.

On November 1, 1945, the Solid Fuels Administration in the United States prepared to discontinue its activities, although subsequent events required that it resume business. It was not possible to discontinue immediately control over distribution in Canada but control was greatly relaxed, and on March 30, 1946, Order No. 23 was issued rescinding all existing orders of the Coal Controller. Coal control prepared to go out of existence, but subsequent developments made this impossible and required the re-institution of a considerable measure of control. Anthracite continued in short supply, and Order No. 25 issued June 6, 1946, and still in effect as this is written, provided generally that a consumer of coal for domestic purposes could not order more than the amount consumed by

him between April 1, 1945, and March 31, 1946. It also restricted deliveries to the consumer up to November 1 to 80 per cent of his normal annual requirements, and in the case of preferred domestic fuels to 60 per cent.*

While the supply of bituminous coal appeared to be adequate, a strike in the American coal fields which occurred in April, and the subsequent shipping strike on the Lakes and the St. Lawrence, have combined to cause the loss for coal importation purposes of a substantial portion of the 1946 navigation season. Due to a shortage through wartime casualties of a number of the smaller vessels normally used for the transportation of coal to the lower St. Lawrence, the situation is particularly serious in that area, it being estimated that two and a half to three months of the navigation season have been lost. Up to date there have been no new general orders controlling the movement of bituminous coal, but the Controller has been obliged to maintain daily contact with the Canada Shipping Board in order to make the best possible use of available shipping space.

The shortage of railway cars has also contributed to the complexity of the problem of current coal movement. Although the general strain of wartime transportation has been eased, the large grain crop in the west, combined with the inability to replace cars worn out in wartime service, has required close co-operation between Coal Control and the Transport Controller to make available the minimum number of cars required for the rail movement of coal.

The eight regional offices of the Coal Controller have been throughout of great assistance in making available to the Controller the necessary information on the supply and requirements of each locality. Of great assistance too were the Regional Solid Fuel Representatives, one appointed for each province by P.C. 7002 on October 1, 1943, who, serving without remuneration, cleared local coal problems and arranged methods of allocation best suited to local requirements.

(2) *Price Control Measures Other than Subsidies*

The freezing order imposed on November 1, 1941, by P.C. 8527 provided that the maximum price at which any person might sell any goods should be the highest lawful price at which that person sold goods of the same kind and quality during the basic period, and stipulated that the differences in price customarily allowed during the basic period to different classes of buyers or for different quantities or under different conditions of sale should be continued. P.C. 8528 approved the same day, gave the Board power to fix specific or maximum or minimum prices and specific or maximum or minimum mark-ups which might be either above or below the basic period prices or mark-ups of a particular dealer, and to prohibit sale at other prices or on other margins of profit. Authority was delegated to Administrators to exercise this specific price fixing authority by Order No. 76 on December 16, 1942. Consequently, save where specific prices or specific mark-ups were fixed, the general pricing practice of each producer, wholesaler and retailer as it existed during the basic period governed his activities thereafter.

Measures designed to ensure the sale of coal in Canada at the prices prevailing during the basic period in the face of increasing costs took several forms. Import subsidies applying to coal imported for domestic use only, and production and transportation subsidies applying to Canadian coal, whether consumed by industry or by the householder, were perhaps the most important and will be dealt with later in this chapter as will the subsidy which was in effect for a time which compensated for wage increases granted to the miners. Other measures taken were principally tariff and War Exchange Tax adjustments, general price fixing orders, and price directions to specific producers, wholesalers or retailers.

* Since this was written, Controller's Order 25A dated October 24, 1946, has increased these percentages to 100 per cent and 80 per cent respectively.

The first step taken in connection with tariffs and the War Exchange Tax was P.C. 394 of January 29, 1942. Due to the diminishing supplies of British coals to the Maritimes and the increased cost of water transport of United States coals to these Provinces, the 10 per cent War Exchange Tax and the customs duty of 50 cents per ton were removed on anthracite coal from non-British countries entering ports in the Maritimes. At first limited in point of time, this order was extended indefinitely by P.C. 3472 on April 28, 1942; and by P.C. 350 on January 14, 1943, it was extended so far only as the War Exchange Tax was concerned to all importations of anthracite into Canada.

Similarly, as a measure designed to control prices, coke imported for heating and cooking purposes was exempted from the War Exchange Tax and the customs duty of \$1.00 per ton by P.C. 4488 on May 28, 1942, the order being clarified by P.C. 8042 on September 9, 1942. Again for the same purpose, P.C. 10824 dated December 1, 1942, exempted imports of coal briquettes from the United States (when imported through any customs port between Port Arthur and the Saskatchewan-Alberta boundary), from the customs duty (of 50 cents in the case of anthracite and 75 cents in the case of bituminous) and from the War Exchange Tax. At first limited to the period ending March 31, 1943, this exemption was continued by P.C. 1517 dated March 1, 1943.

These orders, together with the general Orders in Council of December 19, 1941, and January 20, 1942, referred to in the chronological history of wartime controls, reducing the value of all goods for duty purposes, and abolishing the anti-dumping duty, were of great assistance in obtaining supplies of United States coal within the ceiling. Apart from these changes and a few other minor adjustments, the tariffs on coal existing prior to the war have continued until the present time and are dealt with in the chapter of this report on Subventions and Other Aid.

General price fixing orders were few in number and usually related to the mine prices of particular coals, to retail prices on coal in specific areas, or to wholesale margins. Apart from the orders allowing price increases to compensate for increased wages, dealt with later in this chapter, there were issued all together about 21 orders of this nature. To avoid the possibility of pyramiding wholesale margins, Order No. A-964 was issued on November 5, 1943, fixing the maximum wholesale margin on bituminous coal shipped by rail to retail dealers at 45 cents per ton regardless of the number of wholesalers through whose hands it passed. Another order was required to grant wholesalers of anthracite a small margin of profit on coal obtained from mines which were not in the Canadian trade prior to the war and who refused to grant a trade discount as was the custom with the regular suppliers. In this case, the retailer was obliged to take the "squeeze" as no corresponding increase in the retail price was permitted. A recent order made July 24, 1946, has exempted western producers of domestic coal, who during the depression of the 'thirties had granted trade discounts to large purchasers or exclusive wholesalers running as high as 65 cents per ton, from the section of the maximum prices regulations continuing trade discounts in effect during the basic period, so that they might re-negotiate their contracts in the light of existing conditions and reduce these margins where conditions no longer warranted their continuance. In cases where such mines are receiving production subsidies, Coal Control insists on re-negotiation unless satisfied that the existing wholesaler's margin represents a service of comparable value rendered by him.

Price directions to particular mines, wholesalers, and retailers, and with respect to particular cities, have been issued in many cases to help correct anomalies arising out of the freezing of prices as at a particular period. In many cases, this meant that two retailers in the same town might have different prices for the same grade of coal. Many such cases still exist but many have been corrected by specific direction. One such anomaly was the fact that western domestic

mines had, during the basic period, varying mine prices depending on the destination of particular shipments, lower prices being applicable with respect to areas in which the producer was attempting to build up business. Ontario shipments, for example, carried a lower mine price than coal sold locally. The Administrator permitted such mines to place all shipments on the same basis as local sales which meant, in that particular case, an increase in the retail price of such coal in Ontario. Specific price directions had also to be made in many cases to cover sales by a dealer of a particular grade of coal which was not handled by him during the basic period.

Except for adjustments for the purpose of equalizing prices in particular areas, or to eliminate abnormally high or abnormally low discounts, and except for increases given to allow for specific wage increases, the price of coal, for domestic consumption at least, was held generally at the basic period prices.

(3) *Manpower for the Mines and Coal Deliveries*

Throughout the entire history of Coal Administration and Coal Control, the industry suffered from a shortage of labour. Enlistments, availability of other and more attractive employment, and decrease in efficiency of labour due to inexperienced and over-age men in the coal fields all contributed to this shortage.

The part played by Coal Administration and Coal Control in this sphere consisted of continuous liaison, for part of the war period by means of a joint Committee, with the Department of Labour, National Selective Service and the Army authorities, so that the responsible officials might be kept informed of the effect of labour policies on the output and distribution of coal.

The officials of Coal Control were influential in persuading Army authorities to grant leave during the seasons of greatest emergency to members of the Armed Forces who were experienced in coal mining, provided they return to the mines. They were also instrumental in securing the approval on May 17, 1943, of P.C. 4092, already referred to, which provided that coal miners could not leave their employment, that a mine operator could not dismiss a miner without permission from the Selective Service office, and that no person with two years or more experience in coal mining might remain in any other employment. This order also prohibited coal miners from joining the Armed Forces either by enlistment or draft prior to January 1, 1944, this prohibition being extended (P.C. 1355, March 4, 1944) to August 1, 1945. It also reduced the age of employment in coal mines to 16 years for males, and permitted the employment of females 18 years of age or more in surface work in the Alberta mines.

To assist in providing coal deliveries, which from time to time became a very serious problem, the offices of Coal Control were able to secure the approval on September 7, 1943, of P.C. 6632 prohibiting the call-up or enlistment of any coal delivery man in any city of 50,000 persons or more until February 1, 1944. This prohibition was extended to February 1, 1945, by P.C. 5771 dated July 27, 1944. Assistance in this direction was also secured by the decision of the Army in March, 1944, to undertake the delivery of all of its coal requirements.

(4) *Coal Conservation*

When the coal situation became serious during the summer of 1943, P.C. 6373 was approved on August 11, making it an offence generally to waste fuel and giving the Controller authority to make orders in relation to the use and consumption of coal, with a view to preventing its waste. A few days later, on August 16, by Coal Order No. 6, the Controller established the National Coal Conservation Committee composed largely of combustion engineers and technical men whose duties were to confer with and advise the Coal Controller with respect to the conservation of coal and coke and to investigate and make recommendations concerning the kind of coal and the kind of burning equipment used by any industry or person. This Committee directed its activities largely to

publicity. It issued a 16-page booklet containing suggestions on coal conservation, which booklet was given Canada-wide distribution. It also carried out a newspaper advertising campaign with the same object in view and through the use of this medium, news releases, and dramatized radio spot announcements brought the seriousness of the problem to the attention of the Canadian people. A sub-committee investigated the possibility of coal savings in the railways and with the co-operation of the railroads was able to effect considerable savings. Industrial consumers were kept in close touch with the fuel situation and their co-operation was secured in the direction of coal conservation, and through the co-operation of various associations, and of such large users as hotels, churches, theatres and greenhouses, still further savings were made. It is impossible to estimate in tons of coal saved the results of the activities of the Conservation Committee, but undoubtedly their efforts did assist materially during periods of extreme coal shortages. The Committee suspended operations on March 31, 1946. The cost of the advertising program to the Government was \$220,781.57.

(5) *Price Increases Resulting from Wage Increases*

The chapter of this report dealing with industrial relations reviews in detail the wage situation in the mining industry and it is necessary here to deal only with wage increases in so far as they affected prices.

Prior to the freezing of wages and prices in the fall of 1941 there had been some wage adjustments which in some cases had been reflected in price increases. The Government's declaration of policy concerning labour on July 19, 1940, had suggested the possibility of taking care of wage adjustments, where necessary by reason of war conditions, in the form of bonus payments. In line with this policy two Commissions, one in the West set up at the request of the operators and miners, and an Industrial Disputes Inquiry Commission in the Maritimes, had recommended payment of a cost of living bonus. In December 1940, P.C. 7440 was approved, establishing for the guidance of conciliation officers a cost of living bonus plan on a somewhat different basis. As a result, the increases suggested by the two Commissions were superseded by the plan set out in this Order in Council which was adopted by the larger mines in both regions in the Fall of 1941.

The price freezing order was about to be issued at that time and as it was quite apparent, as a result of investigation by the Coal Administrator, that the companies were, generally speaking, unable to take care of increased costs resulting from the cost of living bonus without either a price increase or Government subsidy, the Administrator authorized a surcharge on coal sales in an amount sufficient to recompense the operator for the payment of the cost of living bonus. This surcharge amounted to 22 cents per ton in the Maritimes and varying amounts ranging from zero to 30 cents per ton in other districts, depending on the man-day production in the particular area and the grade of coal involved.

By circular from the Administrator to the industry on October 17, 1941, ratified by the Wartime Prices and Trade Board on December 1, the surcharge to take care of this first cost of living bonus was directed to be shown as a separate item on all invoices, but following the commencement of subsidy to take care of further increases in the cost of living bonus this surcharge was by Administrator's directive of March 2, 1942, absorbed in the price of coal.

Demands for wage increases in the western field in 1943 resulted in the appointment of a Royal Commission, presided over by the Honourable Mr. Justice O'Connor of the Alberta Supreme Court. The report of that Commission on November 17, 1943, recommended a wage increase of \$1.00 per day, retroactive to November 1, and two weeks' holiday each year with pay. The Commission also reported that an investigation of the financial statements of the operators seemed to indicate that they could not continue to produce coal in the

face of these increased costs, without some assistance in the form of a price increase, and intimated that an increase in the price of coal of 40 cents per ton would be necessary. It was decided by the Government that this suggestion be made effective, the increase to be in such amount as might be determined by Coal Control after a complete investigation. As a result, Administrator's Order A1008 was issued on November 30, increasing the mine prices for certain western mines and giving the operators of other mines the right to apply for increases. It provided that in such cases the Administrator, if he decided an increase in price was required, could specify the amount of the increase. It also gave the distributor the right to pass on, after December 1, so much of the increase as might be charged to him. This increased price ranged from \$1.00 on Alexo and Saunders Creek lump coal down to 10 cents per ton on slack coal from certain areas. Sixty five cents per ton was the general increase on Alberta "domestic" lump coal but the Order provided that on March 31, 1944, this would decrease to 50 cents per ton, it having been made larger in the earlier period on account of the retroactive feature of the O'Connor award. Coal prices at all the western mines were brought into line by subsequent orders.

The Nova Scotia miners immediately requested a similar increase. Their application to the National War Labour Board resulted in a decision dated December 3, 1943, which, while criticizing the O'Connor award, provided that the Nova Scotia miners should be in no worse position and granted a similar increase of \$1.00 per day, retroactive to November 1, and one week's vacation each year with pay. Following this, Administrator's Order A1054 of December 31, 1943, increased the price of coal sold after January 1, 1944, from certain mines by 95 cents per ton, the increase being greater in Nova Scotia due to its smaller man-day production. This price increase was extended later to other Nova Scotia mines by Order A1121 of February 5, 1944, and Order A1185 of May 1, and was extended to the New Brunswick mines by Order A1122 of February 28, and Order A1166 of April 26, 1944.

While the increase in price in the Alberta field was reduced March 31, 1944, from 65 cents to 50 cents per ton in the case of popular "domestic coals", the 95 cents increase in the Maritime coal fields fell short of meeting the increased costs due to the award, and as a consequence, the price increase stood beyond that date.

While there was a considerable amount of public confusion as to the relation of the price increase to the wage increase, the price increase was calculated quite accurately according to a set formula. The wage increase involved a corresponding increase in the Provincial Workmen's Compensation assessments which were largely based on the payroll. From production figures supplied by the mines in each district, an average production per man-day was determined and the wage increase including the increase in compensation was expressed in terms of cents per ton of coal. The increased cost of production resulting from vacation pay was then taken into account and added to the basic figure which had been established. The retroactive feature of the award was then compensated for in terms of cents per ton and the resulting figure was taken as the basic increase. This was then apportioned amongst the various grades of coal produced from mines of each district on the basis of the tonnage of each sold. As no two mines in each district had exactly the same productive capacity, this meant some maladjustments as between mines but it was considered that this was a more practical approach than a different price increase for each mine in the area.

Demands for further wage increases in the Nova Scotia and New Brunswick fields, and for an additional week's holiday as granted the western miners, led to the appointment of an Industrial Disputes Inquiry Commission presided over by the Honourable Mr. Justice Carroll. The recommendations of that Commission were not accepted by the employees and the matter was subsequently

referred to the National War Labour Board. The Board's decision regarding certain companies, given on October 12, 1945, provided that 33 cents on each ton of coal mined and sold prior to February 1, 1947, be set aside to provide a fund to give the miners an additional week's holiday and an increase in pay of 17 cents per shift. This also was passed on to the purchaser in the form of an increase in the price of coal of 33 cents per ton by Administrator's Order A1709 of August 14, 1945. By subsequent Orders, these arrangements were extended to other mines in Nova Scotia and New Brunswick.

As this report was being written, agreements between the operators and miners in the western Canadian coal fields, providing for a wage increase of \$1.40 per day and a 3 cents per ton welfare fund, were concluded and approved by the National War Labour Board. These increased costs were also passed on in the form of an increase in price to the consumer. Administrator's Orders A2159, A2160 and A2161, made October 31, 1946, granted respectively an increase of 85 cents per ton on Alberta and Crowsnest Pass bituminous coal, increases ranging from zero to \$1.75 per ton on Alberta "domestic" coals, depending on the grade and the mining area, and an increase of \$1.50 per ton on Vancouver Island coal. Subsequent Orders have granted similar increases to Alberta mines not included in the earlier Orders and some increases to Saskatchewan producers.

These were the only cost of living bonuses or wage increases that during the entire period after the freezing of prices were passed on to the consumer, and were indeed the only price increases on coal except for such as were mentioned in the section of this chapter dealing with price control. Other increased labour costs were taken care of by domestic subsidy through Commodity Prices Stabilization Corporation Ltd., and after that subsidy ceased on the absorption of the cost of living bonuses into the basic wage rate on December 9, 1943, by production subsidy, through the Emergency Coal Production Board, in cases where the particular mine could not absorb the increase. Both of these subsidies are dealt with later in this chapter. These price increases applied to all Canadian coal whether for domestic or industrial consumption.

It was a cause of some public resentment in the West and in the Maritimes that any of these increases in labour costs should be passed on to the consumer in the form of a surcharge or increase in the price of coal, while increases in mine prices on coal imported for domestic use—and this affected central Canada principally—were taken care of by subsidy without any price increase to the consumer. This import subsidy, as will be seen in the section dealing with that subject, amounted, at one period, to as high as \$3.94 per ton. It is, however, only fair to state that the central Canadian consumer had, before the basic period, absorbed considerable increased cost on imported coal, and consumers in both the East and the West benefited to a considerable extent from production and cost of living bonus subsidies.

(6) *Import and Domestic Subsidies; Commodity Prices Stabilization Corporation Ltd.*

It has been shown earlier in this chapter that the increase in cost of imported goods was the cause underlying the formation of Commodity Prices Stabilization Corporation Ltd. Its activities, however, were not confined to subsidizing imports. Through it were paid several types of subsidy, import and domestic, and by varying methods. These subsidies, as related to coal and coke, are classified by type and method of handling as follows:

(i) DOMESTIC SUBSIDIES

(a) *Cost of Living Bonus Subsidies*—As indicated in the preceding section of this chapter, the first cost of living bonus, whether under special awards, agreements, or P.C. 7440, was passed on to the consuming public as an increase in the price of coal.

When, on October 27, 1941, P.C. 8253 extended to all principal mines the obligation to pay the cost of living bonus calculated as set out in the Order, this meant in many cases a further increase in labour costs. The subsidy principle having meanwhile been adopted with the incorporation of Commodity Prices Stabilization Corporation Ltd., the Coal Administrator by a circular to the trade issued March 2, 1942, provided that the operators might apply for assistance by way of subsidy, and a minute of the Wartime Prices and Trade Board of April 7, 1942, authorized the Corporation to pay such subsidies, subsidies being made generally retroactive to the time of the institution of the first cost of living bonus. Due to varying degrees of productivity of labour in various areas and in different mines in the same area, the subsidy could not be related to the coal tonnage with any degree of accuracy; consequently, it was related to man-days bonused. Maximum rates of assistance were determined for each district and type of operation, and the subsidy was calculated by crediting the number of man-days at the specified rate for the area and debiting the existing rate of price increase on the tonnage of coal shipped. Not all mines were assisted, as those with high man-day production found themselves in no need of assistance other than the price increase. Subsidies were paid only after full production and employment information was supplied to the Administrator and he recommended payment.

As the cost of living index varied from time to time, increases having been directed by the National War Labour Board on August 15, 1942, and November 15, 1943, corresponding adjustments of the maximum rate of assistance had to be made, based on the new rate of bonus. The assistance also had to be varied to take into account some increases in Workmen's Compensation assessment rates, as well as increases in Workmen's Compensation resulting from the bonus payments. Maximum rates of subsidy against which the surcharge was debited ranged from 0.06 cents to 71 cents, depending on the time, the area, and when the operator began paying the bonus.

As the Excess Profits Tax rate was increased to 100 per cent in 1942, it was decided after due consideration, that the subsidy should not be related in any way to the profit of the particular mine.

The cost of living bonus subsidy was in addition to any production subsidy which was granted after the Emergency Coal Production Board was established, but was shown as a credit in arriving at the profit and loss position of the company when considering its application for production subsidy. Production for all purposes was included in calculating the subsidy, except for man-days employed in producing coal for export or for deep-sea bunkers, which, during the latter period of this subsidy, were excluded.

P.C. 9384 of December 9, 1943, merged the cost of living bonus with the basic wage rate, and this type of assistance by way of subsidy was discontinued as of the pay period beginning on or after February 15, 1944. Thereafter the increased labour cost due to these bonuses might or might not be subsidized, depending on whether or not the particular mine might qualify for the production subsidy in accordance with the policies of the Emergency Coal Production Board.

Taking the larger western mines as an example, the cost of living bonus increased from 18 cents per man per day in the early part of 1941 to 77 cents just prior to its merger with basic wage rates. Total cost of living bonus subsidies, instituted solely for the purpose of maintaining the price ceiling, amounted to \$3,223,992.53.

(b) *Bituminous Coal for Coking*.—Three municipal gas plants, those of Owen Sound, Guelph and Belleville, due to the stabilization of the price of gas and increasing coal costs, were unable to carry on without a loss. A domestic subsidy was, therefore, granted to them to take care of the increase in price of the coal imported by them over the cost of the same coal in 1941. The sub-

sidies were not, however, to exceed in the aggregate a sum sufficient to provide for losses. The total amount paid by way of subsidy up to March 31, 1946, amounted to \$36,468.94 and the total tonnage subsidized amounted to 28,266 tons. This subsidy was discontinued on March 31, 1946, as price increases were allowed on the products of these plants.

(c) *Emergency Diversion Subsidies.*—P.C. 1752 of March 5, 1943, which established Coal Control, gave wide powers to allocate coal and to direct consumers to accept coal from particular mines. Coal Controller's Order No. 4 of May 10, 1943, which froze rail-carried bituminous coal in transit also gave the Controller authority to divert same to points where it might be most needed. A Minute of the Wartime Prices and Trade Board dated May 11, 1943, authorized the Commodity Prices Stabilization Corporation Ltd. to pay a domestic subsidy on coal to reduce the increased costs arising out of the diversion or redistribution of coal or the use of a higher grade of coal.

During the following years a number of such diversions were directed. In particular, the British Columbia Gas and Electric Company was directed to use coal from the Crow's Nest Pass Coal Company for its coke and gas plant in place of Vancouver Island coal. Similarly, the Vancouver General Hospital was obliged to substitute McLeod River fines for Nanaimo-Wellington fines. The Winnipeg General Hospital and the Winnipeg Electric Company were obliged to take United States coal in place of coal from the Crow's Nest Pass and the Winnipeg School Board was obliged to use United States coal in place of the Canadian coal normally used by it. In all these cases, the companies and institutions concerned were paid the difference in price between the coal directed to be used and the coal which it replaced, the difference in the characteristics of the substituted coals being taken into account in adjusting the price difference. Subsidies were also paid to the Dominion Steel and Coal Corporation Limited, for coke diverted from Sydney to the Montreal area and other Quebec points to alleviate fuel shortages there, to enable that Company to sell coke at the price established in the areas to which it was diverted. Dealers in Windsor were also paid a subsidy on coke being diverted to that point from Hamilton to take care of their difference in cost and enable them to sell under the ceiling price established for Windsor. Subsidy was also paid to dealers in Halifax and Saint John for stockpiling coke purchased from the Dominion Steel and Coal Corporation Limited during the summer of 1945 to offset the expected shortage of anthracite during the 1945-46 season. The amounts paid for this ranged from 85 cents to \$1.65 per ton and took care of such things as the rental of storage space, degradation, financing and extra handling. The total amount of subsidies paid to cover all such diversions up to March 31, 1946, amounted to \$283,387.31.

(d) *Maritime Transportation Subsidies.*—In normal times, British anthracite delivered in the Maritimes was either shipped direct to the various localities or was transhipped from Halifax or Saint John to the local distributing points by schooner. Due to the fact that the schooners were taken out of service as a result of the war, and the ocean-going vessels were obliged to dock at Halifax and Saint John only, all the coal had consequently to be carried to the distributing point by rail or truck. This involved higher transportation costs and the Wartime Prices and Trade Board on September 24, 1942, empowered Commodity Prices Stabilization Corporation Limited to pay assistance in this respect, as approved by the Coal Controller. These subsidies were payable to the retailers and were limited to the amount necessary to provide a gross margin of profit not to exceed \$2.50 per ton, increased to \$3.50 after March 31, 1946.

On December 21, 1943, coal dealers in Nova Scotia were granted a subsidy on coke purchased by them from the Dominion Steel and Coal Corporation Limited to the extent that their present cost of transporting the same by rail and water from Sydney exceeded the basic period cost of water transportation.

This latter subsidy was changed on September 7, 1944, to a flat rate basis of 25 cents per ton and was extended to include coal from the Dominion Coal Company as well as coke. As on September 1, 1945, coal dealers were permitted to increase their maximum selling price by \$1.00 per ton on coal and \$1.50 per ton on coke, this particular subsidy was discontinued and a new one substituted to the extent necessary to protect gross margins established by the Coal Administrator. The total of all subsidies paid with respect to coal and coke transportation in the Maritimes amounted as at March 31, 1946, to \$35,849.15.

(e) *Wagon Mines Transportation Subsidy*.—During the severe winter of 1942-43 a shortage of fuel developed in certain sections of the western plains and to encourage production from some of the smaller mines in those areas, a direct subsidy of 20 cents per ton was authorized, which subsidy was limited in point of time. The total subsidy amounted to \$1,084.43 and was paid by reimbursing the distributors for the similar payment which they made to the mines.

(f) *Algoma Coke Subsidy*.—In January of 1944, due to strikes in the American anthracite fields, export of anthracite to Canada was for a time suspended. This action created a serious situation for domestic consumers in central Canada. The Coal Controller, therefore, arranged with the Algoma Steel Corporation to divert coke produced at its plant at Sault Ste. Marie from its steel manufacturing operations for sale to civilian consumers. Assistance to wholesale and retail dealers, however, was required to enable them to sell at the established prices for coke and, as a consequence, the Wartime Prices and Trade Board authorized the Commodity Prices Stabilization Corporation to pay a domestic subsidy to the extent that the dealers' costs including commission, as established by the Coal Controller, might exceed the dealers' selling prices. At first this subsidy was based on sales but by an amended Minute of the Wartime Prices and Trade Board dated October 4, 1945, in order to encourage stocking during the water navigation season, it was extended to permit payment of the subsidy whether or not the coke had been actually sold. The total subsidy paid with respect to the sales of Algoma coke, prior to March 31, 1946, was \$2,714,430.45, the coke being distributed to practically all points in Ontario east of the head of the lakes. The total tonnage involved was 930,750 tons. The rate exceeded \$3.90 per ton in a few isolated cases.

(g) *Production Assistance Prior to Formation of Emergency Coal Production Board*.—The Emergency Coal Production Board, whose activities will be dealt with later, was authorized to make payment to producers for losses incurred in their operations from April 1, 1942. It was later considered that the losses should be reimbursed as from the first of the year, and consequently, by Minute of the Wartime Prices and Trade Board dated April 13, 1943, Commodity Prices Stabilization Corporation was authorized to make an accountable advance to Acadia Coal Company Limited in respect of losses incurred during the first three months of the year 1942 plus a portion of standard profits for that period. Subsequently, the same treatment was accorded to Dominion Coal Company Limited. The net amount of such assistance through Commodity Prices Stabilization Corporation was \$378,554.68.

(ii) IMPORT SUBSIDIES

The payment of import subsidies commenced some time following the approval on December 17, 1941, of Order in Council P.C. 9870 incorporating Commodity Prices Stabilization Corporation Limited and the statement of the Wartime Prices and Trade Board referred to earlier stating the principles on which subsidies would be paid.

Import subsidies, generally speaking, were designed to offset the increase in laid-down cost of imported consumer goods between the basic period September 15 to October 11, 1941, and the price actually paid on current importation. Import subsidies in the case of coal and coke might be classified under three headings, United Kingdom anthracite, United States anthracite and United

States bituminous coal, coke and briquettes. Except as hereunder noted, import subsidies related only to consumer purchases as distinct from purchases for industrial purposes.

On March 31, 1942, the Deputy Coal Administrator issued a statement to the effect that coal and coke would be eligible for subsidy, the subsidy to be payable to the importer who acquired title to same from a non-resident supplier, and to be payable only with respect to coal and coke supplied to domestic users of 100 tons or less per annum or to hospitals, churches, schools and other non-profit institutions. This was widened on March 30, 1943, to include coal and coke used in heating any building, or to provide customary and necessary services in and for buildings, except for Government purchases and purchases by public utilities, railways and industrial users. The definition of consumer purchases, however, was again restricted on May 1, 1945, to coal and coke imported for heating any place of dwelling other than an hotel, and for schools, hospitals and the like.

The subsidy applied to any imported consumer coal but until March 31, 1946, coal imported from Great Britain was handled on a somewhat different basis than that imported from the United States. Prior to December of 1941, the British Treasury had been subsidizing coal imported into Canada from Great Britain to the extent of approximately 5 shillings per ton, and this British assistance continued throughout. With the adoption of the import subsidy plan in Canada, however, additional costs such as increased mine costs, increased insurance premiums, and war and marine risk costs in excess of those in effect in 1941, were by arrangement borne by the British Ministry of Fuel and Power in order that British anthracite could continue to be invoiced to Canadian importers at the price in effect during 1941, and reimbursement to the British Ministry was made by Commodity Prices Stabilization Corporation Limited annually, on the recommendation and with the approval of the Coal Administrator.

With respect to coal imported after March 31, 1944, the British Ministry of Fuel and Power was not reimbursed directly but this item was included in the agreement between the two Governments respecting the overall financing of the war as was the special subsidy of 5 shillings per ton referred to above. After March 31, 1946, British anthracite was treated in the same manner as coal imported from the United States. It was no longer subsidized by the British Government, but subsidy was paid by the Canadian Government to the importer to reimburse him the difference in his laid-down costs.

The only other subsidy paid with respect to British anthracite under the classification of import subsidy was the payment to distributors resulting from increased transportation cost in bringing this coal into Ontario and Quebec, necessary because the St. Lawrence estuary was closed to navigation and the coal had to be brought to that area by rail from Atlantic ports. The maximum rate of this transportation subsidy was \$2.50 per ton.

With respect to United States anthracite, the subsidy was paid to importers to take care of the increased mine prices over those in effect during the basic period, there being no substantial change in transportation costs on this coal which was practically all brought in by rail. United States anthracite from the basic period up to the present time has undergone several price increases, the popular grades having increased in mine price from \$6.75 per ton, April 1, 1942, to \$9.00 and \$9.50 on November 30, 1945, and \$10.15 and \$10.65 on June 25, 1946, depending on whether from "line" or "independent" mines. The removal of the War Exchange Tax took care of the first price increase of 55 cents per ton and made \$7.30 the basic price throughout the entire period, plus, of course, exchange on that amount. For the purpose of simplicity in administration all anthracite coal was considered to be purchased for heating purposes and eligible for subsidy, although a small portion may have found its way to industry.

United States bituminous coal, coke, and briquettes were subsidized in the same way, where used as consumer goods rather than by industry. In the case of such fuels, however, increased transportation costs as well as mine price increases had to be subsidized. Most bituminous coal is brought in by water, and water transportation costs have undergone several changes; and considerable of the coal had also at various times to be brought in by long rail haul. It was also necessary in the case of such coals to investigate carefully claims for subsidy, to ascertain that in fact the coal or coke had been sold as consumer goods.

As this is written the import subsidy on anthracite ranges from \$0.43 on cheaper grades to \$2.58 on the preferred grades. On bituminous coal it ranges from \$0.11 to \$5.00 and averages probably \$1.50 per ton. The return to parity of the Canadian dollar was of some assistance in this connection; at one time the subsidy on imported anthracite ran as high as \$3.94 per ton.

The total amount of import subsidies paid on coal and coke up to March 31, 1946, amounted to \$18,274,588.70. The amounts paid, with approximate related tonnages, under each classification, are as follows:

	Amounts Paid	Tonnages
	\$	
Coal, United Kingdom Anthracite.....	3,139,380.42	711,000
Coal, United States Anthracite, Consumer.....	7,314,875.39	16,997,000
Coke, Consumer.....	776,499.54	2,127,000
Coal, United States, n.o.p. Consumer.....	7,043,833.35	17,589,000
	18,274,588.70	37,424,000

(7) *The Emergency Coal Production Board; Production Subsidies, Loans and Grants*

This Board, as stated earlier in this chapter, was established by Order in Council P.C. 10674 on November 23, 1942, to take care of a grave situation that was developing in the matter of the supply of coal both for household use and for industry. It was to consist of the Coal Controller as Chairman and two other members, later increased to four, to be responsible under the direction of the Minister, then the Minister of Finance, but later the Minister of Munitions and Supply, "... for the taking of such measures as may be necessary or expedient for maintaining and stimulating the production of Canadian coal and for insuring an adequate and continuous supply thereof for all essential purposes". Under that Order, the Board was empowered to open and operate new coal mines, to prohibit or limit the operation of any existing mine which, in the opinion of the Board, might have insufficient production to warrant the continued employment of labour and equipment, to direct the production policies and methods of any coal mine, to conduct investigations relating to impediments in respect of the mining and distribution of coal, and to suspend for such period as the Board might designate any provision of any law respecting the conditions of employment or eligibility of persons for employment in coal mines where they might constitute impediments to maximum production. It also gave the Board power to require the operator of any coal mine to adopt any production plan or other incentive that might be ordered; and authorized the Board to enter any premises and take possession of any supplies of coal and allocate or dispose of same as the Board might deem proper. The Board was also given the power to enter into possession of and utilize any land, building, or plant or equipment, paying therefor such compensation that might be determined by agreement or by the Exchequer Court. The Board was further empowered to render or procure such financial assistance to any coal mine as the Board might deem proper for the purpose of ensuring the maximum or more efficient operation of such a mine, provided that the assistance, except capital assistance, should not be such as to increase the profits of operation beyond the standard profits as established under the Excess Profits Tax Act.

By amending Order P.C. 4565 on June 4, 1943, the Board was empowered to guarantee, on behalf of the Canadian Government, the repayment of any advance made by any bank to any coal mining operator, if in the opinion of the Board it might facilitate the maximum or more efficient operation of the mine.

From its inception, the Board was concerned with the manpower situation, and while it was empowered to override provincial laws concerning eligibility for employment in coal mines, these powers were not exercised directly. It was, however, largely responsible for the Order in Council, P.C. 4092, of May 17, 1943, dealt with in this chapter under the heading "Manpower for the Mines and Coal Deliveries".

The Board's principal activity was the securing of financial assistance to the industry. At the time the Board was established, one of the principal handicaps to the industry was shortage of working capital. Labour shortages had accentuated this condition as any decrease in production through loss of manpower increased the labour cost of the remaining production. Increases in wages and in other costs had also occurred in many cases. Many mines were in poor financial condition and in some cases were likely to go bankrupt and close down. Any shutdown, even if temporary, would mean that the miners would drift away from this type of employment with a further loss in potential production. The Board considered, therefore, that the first matter to be dealt with was to keep these mines in a sound financial condition. The financial assistance given was of five kinds,—production subsidies, grants, loans, special depreciation and depletion allowances, and wage equalization payments, besides the Board's sponsorship of the strip mine projects in Alberta. They will be dealt with in that order.

(a) *Production Subsidies*—The first meetings of the Emergency Coal Production Board early in December 1942, authorized the making of accountable advances to mines known to be in precarious financial position, the payments to be made by Commodity Prices Stabilization Corporation on the recommendation of the Board, and the amounts and terms of payment to be reviewed at least once each three months and based, wherever possible, on audit and inspection reports satisfactory to the Board. It was considered that, save in exceptional cases, financial assistance should be such as to take care of operating losses of the companies together with the amount of their standard profits or 15 cents per net ton, whichever should be the lesser. This practice was followed until March of 1944, assistance being limited to those companies that operated at a loss.

During this period it was found that the policy of guaranteeing losses was not giving sufficient encouragement to the operators to increase production, and gave no incentive to economical operation. It was consequently decided in March 1944, that the existing policy should be replaced by a new plan of subsidy at a flat rate per ton, not to exceed standard profits, the subsidy to cover primarily the added cost imposed on the operators by Government action, such as authorized wage increases, cost of living bonus and other items beyond the control of the operator. It was decided that a maximum rate of subsidy for each area should be fixed based on an investigation of the productivity and financial position of the mines in the area, and to consider individual claims for subsidy within the limits of the maximum rate for the field. The maximum rates were determined as follows:

Nova Scotia.....	\$ 0.65	Alberta:	
New Brunswick.....	1.00	Lethbridge Area.....	\$ 0.35
Alberta:		Coalspur Area.....	0.35
Edmonton Area.....	0.65	Saunders Area.....	0.50
Drumheller Area.....	0.30		
Camrose Area.....	0.65	British Columbia.....	0.60*

* This being increased on July 1, 1945, to \$0.75.

It was also decided that due to the special problems involved with the Dominion Coal Company group in Nova Scotia, the old system should be retained for those specific mines, the costs there to be determined by Government audit.

Each company applying, and found eligible, was authorized for a flat rate subsidy after careful analysis of its financial position. Rates were determined for each fiscal year in advance on the basis of the previous year's experience and approximated the loss for the fiscal period just ended plus 15 cents per ton. If the results in the current year were less favourable, the rate for the next year might be revised within the limits of the maximum for the field. Quarterly statements were required to keep the Board informed of the profit and loss position of the subsidy recipient. If these indicated that the profits were progressing into the excess profits bracket, the rate was not changed during that fiscal period but advances were withheld until the financial result of the year's operations was determined. Fixed rates were maintained for the full fiscal period to encourage the operator to fight cost increases and to maintain a rate of production that would ensure a profit.

Production subsidies actually paid by the Board to March 31, 1946, amounted to \$22,721,120.95. Of this sum \$18,394,599.47 went to Nova Scotia mines, of which \$15,204,505.96 was paid to Dominion Coal Company Limited and \$2,474,303.28 to Acadia Coal Company; \$819,376.26 was paid to New Brunswick mines; \$381,253.54 went to mines in Saskatchewan, of which \$242,223.61 was paid to the Manitoba and Saskatchewan Coal Company Limited; \$2,195,293.80 was received by operators in Alberta, practically all of which went to operators of mines producing "domestic" coal; and \$930,595.88 went to British Columbia mines, including \$707,144.33 paid to Canadian Collieries (Dunsmuir) Limited. Further details of these payments may be found in the chapter entitled Financial Aspects of the Industry. The only important Nova Scotia mines not in receipt of a production subsidy were Old Sydney Collieries Limited and Joggins Coal Company Limited. Some of the larger producers of "domestic" coal in Alberta, and practically all of the mines producing industrial coal in the Alberta and British Columbia mountain region have not received this subsidy.

The restriction of the production subsidy to the amount of the "standard profits" did not necessarily mean that the operators received their full standard profits. Many operators showed no profit in spite of subsidy payments, and a great many others obtained profits much below the standard profits as established under the Excess Profits Tax Act.

What might have happened without this assistance is, of course, a matter of conjecture, but it seems obvious that without it, the continued sale of coal under the price ceiling would have severely handicapped a great many producers, and others would doubtless have been obliged to discontinue operations.

Production subsidies, it might be noted, maintained the price ceiling on Canadian produced coal to both domestic and industrial consumers, while the import and domestic subsidies paid through Commodity Prices Stabilization Corporation Limited, generally speaking, applied only to coal for domestic use. No provision was made, however, for production subsidy on tonnage delivered to the Government of Canada, or any agency thereof. Instead, on such sales the Coal Administrator authorized a price increase approximately equivalent to the amount of the subsidy.

The disbursement of such large sums of money was bound to be attended by many difficulties. Close scrutiny of the accounts of each operator was required, and different accounting methods employed by the various operators and differing concepts of capital and income led inevitably to many disputes. The Board was alert to see that the money was used for the purpose for which it was paid, but in spite of close supervision it is possible that some development work and other capital expenditures were paid for by Government money earmarked for operating losses.

Four proceedings have been instituted in the Exchequer Court with respect to the activities of the Board. One by Western Dominion Coal Mines Limited related to the right of an operator to receive subsidy, and resulted in a judgment favourable to the Board. Another brought by Rosedale Collieries Limited related to a direction by the Board to the operator to continue operations in accordance with the recommendations of the Board's engineer. Judgment was given the operator for \$38,986.86, being the amount expended to the time the Board advised that it would be responsible for no further expenditures, the claim for work done beyond that time being dismissed. Two other actions, one raising the question whether interest on investments should be included in arriving at the profit position of the mine, and the other involving the right to claim depletion allowance in arriving at the profit position, in the absence of proof that it represented loss of money expended, are still pending in the Exchequer Court.

(b) *Grants*.—With the object of obtaining quick additional production, a number of grants were made to mine operators in the early days of the Emergency Coal Production Board. Made with no provision for repayment, these grants were chiefly for the purpose of driving new entries, development work, and in the case of strip mines, for additional stripping. Some grants were made, however, for other purposes such as power installations and housing. They totalled \$278,814.64, and none was made to Nova Scotia or British Columbia operators. The principal grants were: \$66,538.82 to Western Dominion Coal Mines Limited; \$39,886.37 to Rosedale Collieries Limited; \$70,691.06 to K.D. Collieries Limited; and \$40,000.00 to Cadomin Coal Company Limited. While in most cases these grants resulted in additional production, the grant to K.D. Collieries Limited had no tangible results as the grant was made for the specific purpose of opening a new mine which never came into production. In addition to those paid to operators, sundry other grants were made for special purposes, the largest of which was the sum of \$62,458.91 given to the Quebec Department of Mines for peat development.

(c) *Loans*.—To provide for capital expenditures involved in procuring additional coal, a total sum of \$396,786.11 was advanced by the Board by way of loan prior to March 31, 1946, most of which went to operators in Alberta and Saskatchewan. While power to compromise was given, no compromises have been effected to date. Except for one company, which had a loan of \$4,000.00 and has since become bankrupt, all loans are current and the Board expects to recover its advances in practically all cases.

(d) *Special Depreciation and Depletion Allowances*.—In some cases, in order to encourage production, the Emergency Coal Production Board made provision for accelerated depreciation allowances and increased depletion allowances to encourage mine operators to purchase new machinery, or extend plants, or to provide a greater tonnage of coal. The operation of the Excess Profits Tax Act imposed a serious limitation on the expansion of the mine operators' activities for, apart from the difficulty of finding the necessary capital, those concerns best able to do so were reluctant to make expenditures which might not be of value in post-war and lowered-tax days; nor did they wish to deplete their coal reserves when their additional profit represented only additional tax. They were, however, quite prepared to do so if the cost could be written off, or a depletion reserve set up, against surplus profits earned during the period of the 100% Excess Profits Tax. The Minister of National Revenue had, by statute, discretion to fix the amount of depletion and depreciation to be allowed and through the exercise of this discretion, on the recommendation of the Emergency Coal Production Board, accelerated depreciation was granted in a number of instances on such items of capital expenditure as miners' houses, cutting machines, transmission lines and new development work. The normal rates of depreciation ranging from 5 per cent to 10 per cent per annum were increased to percentages ranging from 20 to 33½ on new expenditures totalling about three and three-quarter millions of dollars, and it meant to those operators in the excess profits

brackets, that during the period of the 100% tax, the Government absorbed about 80 per cent of the cost of these capital items. It also meant a considerable saving to operators in standard profits, but of course meant nothing to those whose operations resulted in a loss. By far the greater part of these special allowances related to western mines, the most important being an allowance of 20 per cent on a new and modern plant costing about one and a half million dollars built in 1942 by the Crow's Nest Pass Coal Company Limited.

Two bituminous strip mines in the mountain region of Alberta were granted an additional depletion allowance of 15 cents per ton on all coal produced in excess of that produced during the period of standard profits, 1936 to 1939. This resulted in some increase in production and the special depletion allowances given amounted to some four or five thousand dollars in all. One strip mine in the Maritimes was granted a similar allowance. According to information supplied by the Coal Controller, these were the only operators granted special depletion allowances on the recommendation of the Board.

(e) *Wage Equalization Payments*—Basic wage rates in effect in the Cape Breton and Springhill mines of the Dominion Coal Company, and rates in effect in the mines of Old Sydney Collieries Limited and Acadia Coal Company Limited were at variance. On the establishment of the War Labour Board, applications were made involving changes in the agreements between the three companies and District No. 26 of the United Mine Workers of America. In March, 1942, a report of the Board recommended further negotiations between the companies and the union, suggesting that by joint action some of the differences might be resolved. In the negotiations, it was agreed that a sum of \$500,000.00 per year would be made available to the respective companies for the purpose of equalizing the rates paid to the employees of the three companies, distribution of the sum to be as determined by the union and the companies. An independent audit of the companies, authorized by P.C. 13/8817, of November 11, 1941, at the request of the union, disclosed the inability of the companies to pay this sum, and finally the Government agreed to make that amount available annually. Before any of this money was disbursed, a new agreement between the companies and the union, ratified by the War Labour Board on March 19, 1943, resulted in wage increases much in excess of the \$500,000.00 mentioned in the prior agreement.

Meanwhile, the Emergency Coal Production Board was established, the duty of taking care of this promised aid was assigned to it, and the sum of \$685,699.65 was disbursed to Dominion Coal Company Limited and Acadia Coal Company Limited as a wage equalization subsidy. This wage equalization grant was later discontinued, it being merged in the production subsidy.

(f) *Government-Sponsored Strip Mines in Alberta*—When the coal situation became particularly serious in the summer of 1943, the Board decided that the best method of obtaining immediate increased production was by opening new strip mines. The Board's engineer surveyed possible locations and recommended the opening of six such mines in the Province of Alberta, the mines to be operated by private companies with the financial assistance of the Board.

The first funds were made available by the Board's guarantee of bank overdrafts for capital expenditures and operating costs. Guarantees were also given to stripping contractors employed by the operators. The initial agreement between the Board and the operators provided that all funds relating to each project should be kept in a separate bank account, and the proceeds of all coal sold should belong to the operator after payment of all operating costs. Arrangements were made for special depletion allowances, but, as none of the mines operated at a profit, it is unnecessary to consider this except to say that a misunderstanding as to the nature of this allowance, some operators considering it as equivalent to a royalty payable as part of the operating costs, was the cause of considerable difficulty, leading in one case to a protracted investigation. Operations under the agreement were to be continued for so long only as the Board might determine and under the general direction and control of the Board.

Operation of these mines was suspended early in 1944 when the demand for coal had eased, but due to the closing of some underground mines in Alberta, and an anticipated shortage of coal in the coming winter, they were re-opened late in June under new agreements providing for payment by the Board of bank overdrafts; and the supply of funds thereafter was made by the Board to the special accounts on the basis of a monthly budget prepared by the operator, and certified by the Board's representative. A progressive audit by the Treasury Department was designed to ensure that funds were spent in accordance with the approved budget. Receipts from coal sales were thereafter paid by each operator into another special account, and paid out each month to the Board for application, first, on all indebtedness for capital expenditure, and secondly, on the advances made for operation. The agreements provided that on abandonment of the project, or termination of the contract by the Board, the Board would assume all operating deficits, and if any money should be still owing for capital expenditures, the operator should have the option of surrendering title to the capital equipment, or taking title thereto on payment of the balance due. All credit sales had to be approved by the Board.

On February 20, 1946, the Board authorized the termination of all contracts, the equipment purchased and paid for by capital loans and retired by receipts from coal sales reverting to the operators, except in one case where the capital advances had not been repaid, and the operator exercised the option of surrendering the equipment which was declared surplus to the War Assets Corporation.

These operations resulted in a net loss to the Government of approximately \$1,400,000.00 and the tonnage sold by the projects during the period they were sponsored by the Board amounted to 852,711 tons. Overburden totalling 7,277,012 cubic yards was removed at stripping costs ranging from \$.217 to \$.29 per cubic yard. The advances unrecovered, the overburden removed, the amount of coal sold, and the portion thereof shipped into Ontario on the freight subvention of \$.250 per ton, are shown as follows by projects:

Project	Total Advances Unrecovered as at March 31, 1946	Cubic Yards Overburden Removed	Tonnage Sold to March 31, 1946	Tonnage Shipped to Ontario to End of 1945
	\$			
Camrose Collieries Ltd.	335,808.92	948,314	87,681	Nil
Castor Creek Collieries Ltd.	185,425.15	284,800	53,498	Nil
Birnwel Coal Limited.	152,701.28	2,244,775	352,492	75,718
Majestic Mines Limited.	189,033.53	827,994	57,227	3,905
Western Ventures Ltd.	353,572.52	1,405,854	142,059	27,464
Continental Coal Corp., Ltd.	504,553.27	1,565,275	159,754	47,597
Total.	1,721,094.67	7,277,012	852,711	154,684

While at first glance it might appear that these costs were excessive, and no doubt unexpected delays occurred and mistakes were made, almost inevitable in handling a new venture of this nature, it should be remembered that these were emergency measures necessitated by the inadequate output of the ordinary domestic mines. It should also be remembered that in order not to conflict unduly with the established mines in Alberta, the strip mines operated only on part time, and solely during emergent periods when the demand could not be met from regular sources, and this naturally resulted in higher operation cost and consequent loss. These strip mines materially assisted in preventing distress in western Canada, and the tonnage shipped into Ontario was of assistance in meeting the shortage there.

(8) *The Hamilton Coke Ovens*

Due to increased industrial activity in the Hamilton area, the demand for gas increased from around ten billion to about thirteen billion cubic feet per year. Some natural gas fields became exhausted and to obtain additional sources of gas, the Power Controller arranged for the installation of new facilities and compelled many householders to convert from gas to coal. As one means of taking care of the shortage, a new Curran-Knowles coke oven gas plant was erected at Hamilton. Thirty-six of these ovens were completed in the spring of 1943 and an additional eighteen in December of that year. The plant, built on leased land, was constructed at a cost to the Government of \$4,100,000. Operated by Hamilton By-Product Coke Ovens Limited, a company with existing ovens at Hamilton, who purchased the gas and sold the coke for the Government, the operating losses amounted at the end of June 1946 to \$1,400,000. Recently, the demand for gas having fallen off but, there being need for coke for domestic heating, the Coal Controller has taken over the plant and its operation is being continued on his behalf. It is currently operating at a monthly loss of from \$30,000 to \$50,000. To June 30, 1946, 470,000 tons of coke had been produced at an operating cost of \$13.13 per ton, not allowing for the retirement of the capital invested. It is proposed that this plant will be scrapped as soon as the present coal emergency is over. The scrap value is expected to be about \$250,000.

While the Government will probably take a loss of approximately \$6,000,000 on this enterprise, it was a plant built for the specific purpose of keeping in operation the industrial plants in the Hamilton area and on that ground might be justified.

Conclusion

From the commencement of the war to March 31, 1946, the Federal Government has paid by way of assumption of losses, direct subsidies and grants to persons engaged in the coal business in Canada, in excess of \$50,000,000.00, most of this having been paid after the price freezing order of November 1, 1941. Of this, about \$32,000,000 was paid in respect of coal and coke produced in Canada, and the balance with respect to imported coal and coke. This is, of course, exclusive of amounts spent by way of administration costs of Coal Administration, Coal Control and the Emergency Coal Production Board, amounting to \$795,768.27, the cost of the coal conservation advertising program amounting to \$220,781.57, the cost of general advertising by Coal Control of \$112,512.46 and payments by the Federal Government indirectly related to coal, such as the cost of building and the loss on operation of the coke ovens at Hamilton, and the cost of building the Koppers ovens for the Algoma Steel Corporation, which, while built for the steel industry, did supply a great deal of coke for domestic use. It also excludes the subventions and payments under the Domestic Fuel Act and the Coal Bounties Act which cannot be termed wartime expenditures, and which are dealt with elsewhere in this report.

Undoubtedly a substantial part of this money was spent in support of the policy of price stabilization, and large sums are still being disbursed to this end. It is, of course, a matter for speculation as to what might have resulted if consumers had not been protected by a price ceiling and the operators had been left free to secure the price that the coal would have otherwise commanded. The policy of price stabilization was no doubt in the public interest, but, in

parting with the subject, it is pertinent to observe that there may be a tendency on the part of industry to let down when a necessary incident of stabilization is payment from the Federal Treasury of the losses that are sustained in operation.

The subsidies paid to coal mine operators, being inseparably involved with the ceiling price, frequently placed the producer in an unrealistic and unfair light as to the efficiency of his operations. He is shown as receiving substantial aid from the Government, while his customer, protected by the price ceiling, may be operating at profit levels never before attained.

However, we have now arrived at the time when consideration has to be given to the relaxation of controls. It was thought that as far as coal was concerned, the controls could be abandoned on March 31, 1946, but strikes in the United States bituminous fields and other factors made it appear that the controls were probably more necessary than ever through the winter of 1946-47. Nevertheless, the situation is that present coal prices, by reason of increases in wages and in other costs, are permanently up, and the time cannot long be delayed until these increased costs of a permanent nature are passed on to the consuming public. When this is done, the coal industry will again be placed in the position of finding its own market, with all the incentives that are implied therewith.

The foregoing review, particularly in connection with subsidies paid the Canadian industry, is some indication of the underlying weakness of the industry in Canada which, troubled with over-production in one decade, encounters difficulty in meeting the demands of increased production in the next.

CHAPTER XIII

SUBVENTIONS AND OTHER AIDS

This chapter treats with the assistance extended to Canadian coal producers by the Dominion Government by payments of money and by customs duties. In the chapter Government in Relation to the Coal Industry the interest of the Dominion Government in matters pertaining to coal supply and coal production, starting with World War I, is reviewed, and is here alluded to only briefly. In 1921 a Special Committee of the House of Commons inquired into a variety of matters pertaining to Canadian coal supply, the availability of ample supplies of anthracite for Central Canada being a principal matter of concern, and resulted in the creation of the Dominion Fuel Board, a body charged with the study of Canada's fuel problem. In 1923, a Committee of the House of Commons, and another Committee of the Senate inquired into matters pertaining to coal, including the feasibility of increased use in Central Canada of coal produced in the Maritimes and Western Canada. On March 31, 1924, the following resolution was passed by the House of Commons:

"That in the opinion of this House, the time has arrived for Canada to have a National Policy in relation to its coal supply and that no part of Canada should be left dependent on the United States for such supply. The Government should immediately consider the institution of an all British and Canadian coal supply, and that such a policy is both a social and economic necessity and in the best interests of the future of Canada."

Then, in 1926, a Special Committee of the House of Commons recommended, amongst other things, that trial shipments of Alberta domestic coal be made by rail and lake under the supervision of the Dominion Fuel Board, and that the Government consider the question of granting assistance to enlarge markets for Maritime coal. The Board of Railway Commissioners was directed to ascertain and report on the cost of carrying coal from Alberta mines to points in Ontario, and the majority of the Board found that the inclusive cost of transporting coal to Toronto, including an element of profit, was \$12.20 per ton. In the same connection the Board of Railway Commissioners, on February 1, 1933, certified to the Minister of Mines that for test movements between 1928 and 1932 the railways were entitled to full tariff rates, namely, \$10.90 a ton to North Bay, and \$12.70 a ton to Toronto, from Alberta mines.

Growing out of the attention directed to Canadian coal supply in the late 1920's and early 1930's, and of the various test movements carried out, and also of the contraction in coal markets in the early 1930's, a system of Federal aid to enlarge the markets for Canadian coal developed. The assistance was generally known as transportation subventions. The purpose of these subventions was to equalize the competitive position of Canadian coals with respect to imported coals in various areas, principally Central Canada. The actual methods used varied from year to year, from area to area, and with the nature of the consumer, but in general the Federal Government contributed the approximate difference in laid-down costs of Canadian coal and the imported coal that might otherwise have been used. Among the methods adopted to achieve this end were the following:

- (1) Paying on individual movements the difference between the laid-down cost of Canadian coal and the laid-down cost of imported coal that might otherwise have been used,
- (2) Reducing the freight rate by paying the carrier a fraction of a cent per ton-mile,

- (3) Reducing the freight rate by paying the carrier a percentage of the rate,
- (4) Paying \$2.50 per ton on an \$8.00 rate offered by the railways for the movement of Alberta coal into Central Canada.

In respect of railway purchases the assistance given was the difference in laid-down costs as determined by the Dominion Fuel Board. In the calculation of the assistance the operators' selling price (not the cost of production) was taken, and the laid-down cost of United States coal that might otherwise have been used was ascertained by advice from purchasing executives of the railways, and checked by inquiries in the trade, and by reference to published prices at various producing points. In the case of subventions which were a reduction in the freight rate, the extent of the reduction was fixed by Order in Council after the Dominion Fuel Board had determined the competitive position of Canadian and imported coal. In every case there was a ceiling varying from 50 cents to \$2.50 per ton. As the competitive position varied from time to time, it was necessary almost annually to issue new Orders in Council adjusting the reduction granted in the freight rate. There was no way whereby the competitive position of Canadian coal with imported coal could be equalized with complete accuracy. It would appear that over a period of years and in a general way the competitive position was equalized, but there are a number of instances where the assistance was either too great or too small. Details of the various Orders in Council may be found in Coal Statistics for Canada.

From 1931, assistance was extended under Orders in Council to a producer on Vancouver Island for coal exported or used for bunkerage. The assistance was not, strictly speaking, a transportation subvention.

We will now proceed to review Federal assistance under three headings, assistance by Orders in Council (Subventions), assistance under two Statutes, and assistance by customs tariff.

ASSISTANCE BY ORDERS IN COUNCIL (SUBVENTIONS)

NOVA SCOTIA

Starting in May of 1931, P.C. 1300 provided for the assisted movement of Nova Scotia coal to points in the Provinces of Quebec and Ontario. Under the prevailing conditions, water-borne Nova Scotia coal could be laid down at St. Lawrence ports to compete with imported coal, and to enable furtherance from these ports by rail assistance was granted by a reduction from existing rates varying from one-fifth cent per ton per mile to one-third cent per ton per mile, the maximum assistance being \$1.50 per ton. In addition, coal shipped wholly by rail to points in the Provinces of Quebec and Ontario during the period from November to April inclusive, was granted a reduction of one-seventh cent per ton per mile, the maximum assistance being \$2.00 per ton. In all cases the amount of the assistance was payable to the railways. In May of 1932, by P.C. 1048, this scheme of assisting furtherance was confirmed, and coal purchased by railways for their own use at points in Quebec and Ontario was granted assistance to the extent of the difference between the laid-down cost to the railways of coal mined in the Maritime Provinces and the laid-down cost of the imported coal that would otherwise be used, up to a maximum of \$2.00 per ton, payable to the coal operators. Provision was also made for assistance when coal was furthered by water transportation west of Montreal.

The assistance thus reviewed was greatly altered by the impact of war, when coal in the Maritime Provinces ceased to move into Ontario, and shipments to Quebec were greatly reduced. Orders in Council provided for movements of Nova Scotia coal within Nova Scotia and to the Province of New Brunswick

and also altered the terms on which assistance was granted on movements to the Province of Quebec. To a great extent this assistance was for the protection of the consumer under the wartime price ceiling policy, which should be recognized in any consideration of this period.

Particulars of transportation assistance, including amounts disbursed for test movements, are given in the following table:

ASSISTANCE EXTENDED FOR MOVEMENT OF NOVA SCOTIA COAL
1928 TO 1944 INCLUSIVE

Year	Tons	Cost	Cost Per Ton
		\$	\$
1928	113,905.00	65,600.38	0.58
1929	304,276.00	205,270.16	0.67
1930	372,029.00	214,720.41	0.58
1931	401,597.00	225,137.08	0.56
1932	710,449.00	545,944.30	0.77
1933	1,384,268.00	1,280,222.84	0.92
1934	1,748,004.00	1,687,450.78	0.97
1935	1,588,302.00	1,489,412.37	0.94
1936	1,677,096.00	1,572,780.24	0.94
1937	1,908,821.00	1,785,791.70	0.94
1938	1,377,115.00	1,253,313.26	0.91
1939	2,420,694.00	2,988,403.66	1.23
1940	1,940,571.00	2,643,366.54	1.36
1941	2,015,829.00	2,188,364.52	1.09
1942	1,655,264.00	2,710,437.79	1.64
1943	803,892.00	2,310,513.26	2.87
1944	798,258.45	1,932,798.71	2.42
	21,220,370.45	25,099,528.00	1.18

Included in the foregoing amounts are payments made under Order in Council P.C. 944, April 26, 1932, authorizing payment to Canadian coal operators of the difference per ton between the laid-down cost to the coke oven proprietor or gas manufacturer of coal mined in Canada and the laid-down cost at the same plant of the imported fuel which would otherwise be used, up to a maximum of \$1.00 per ton. Under this Order in Council Nova Scotia coal, in limited amounts, moved to the Ottawa Gas Company Limited and Shawinigan Chemicals Limited, but the only important tonnage was delivered to the Montreal Coke and Manufacturing Company, particulars whereof may be of interest, and are as follows:

MONTREAL COKE AND MANUFACTURING COMPANY

Calendar Year	Canadian Coal Moved	Amount Paid
	Net tons	\$
1932	151,194.75	151,194.75
1933	67,844.00	67,844.00
1934	188,278.45	188,278.45
1935	175,669.30	175,669.30
1936	163,427.40	163,427.40
1937	171,489.75	171,489.75
1938	171,222.15	171,222.15
1939	182,697.70	182,697.70
1940	179,928.75	179,928.75
1941	146,368.00	117,094.40
1942	30,951.75	30,951.75
1943	Nil	Nil
1944	Nil	Nil
	1,629,072.00	1,599,798.40

A breakdown of the tonnages moved under assistance into Quebec and Ontario should be noted:

TONNAGES AND COSTS OF NOVA SCOTIA COAL MOVED UNDER SUBVENTION

Year	Into Quebec		Into Ontario	
	Tons	Cost	Tons	Cost
		\$		\$
1928.....	72,124.00	56,954.96	41,781.00	8,645.42
1929.....	219,618.00	189,093.73	84,658.00	16,176.43
1930.....	277,318.00	197,735.35	94,711.00	16,985.06
1931.....	303,083.00	203,416.70	98,514.00	21,720.38
1932.....	521,587.00	425,022.84	188,864.00	120,921.46
1933.....	915,364.00	591,845.92	468,904.00	688,376.92
1934.....	999,821.00	718,363.44	748,183.00	969,087.34
1935.....	711,732.00	461,872.12	876,570.00	1,027,540.25
1936.....	640,749.00	396,777.35	1,036,347.00	1,176,002.89
1937.....	825,555.00	497,348.40	1,083,266.00	1,288,443.30
1938.....	687,622.00	443,528.74	689,493.00	809,784.52
1939.....	1,016,522.00	656,435.46	1,404,172.00	2,331,968.20
1940.....	1,209,352.00	1,473,806.03	731,218.00	1,169,560.51
1941.....	1,815,479.00	1,934,541.44	200,350.00	253,823.08
1942.....	1,393,946.00	2,076,861.67	.....	.....
1943.....	453,284.09	853,431.26	.....	.....
1944.....	333,429.03	710,170.97	.....	.....
	12,396,585.12	11,887,206.38	7,747,031.00	9,899,035.76

During the entire period under review, a total of 20,354,094 tons of Nova Scotia coal reached the Quebec market without assistance. The highest annual tonnage was in 1928, amounting to 2,638,127 tons, and from 1934 onwards always exceeded 1,000,000 tons annually until the war disrupted water-borne movement up the St. Lawrence. In the years 1942 to 1944 inclusive, 424,394 tons of coal moved within the Province of Nova Scotia under subvention, at a total cost of \$1,048,505.48; and for the same period 652,360.42 tons were moved into New Brunswick under subvention, at a total cost of \$2,264,780.38.

A summary of the amounts disbursed for the assisted movement of Nova Scotia coal is as follows:

Coal moved into Ontario.....	\$ 9,899,035.76
Coal moved into Quebec.....	11,887,206.38
Coal moved within Nova Scotia and to New Brunswick.....	3,313,285.86
	<u>\$25,099,528.00</u>

NEW BRUNSWICK

Concurrently with granting assistance for the movement of Nova Scotia coal, assistance was also granted encouraging the rail movement to Quebec of coal mined in New Brunswick. With New Brunswick production being limited, the tonnages moved and payments made thereon were relatively small.

TONNAGES AND COSTS OF NEW BRUNSWICK COAL MOVED UNDER SUBVENTION

Year	Tons	Cost	Cost Per Ton
		\$	\$
1928.....	120	209.78	1.75
1929.....	231	330.12	1.43
1930.....	36	70.20	1.95
1931.....	239	162.49	0.68
1932.....	1,195	896.13	0.75
1933.....	1,163	980.78	0.84
1934.....	10,196	8,609.22	0.84
1935.....	14,325	10,544.29	0.74
1936.....	20,889	15,314.14	0.73
1937.....	41,083	32,362.55	0.79
1938.....	32,305	25,455.94	0.73
1939.....	54,165	45,663.98	0.84
1940.....	59,224	42,385.65	0.71
1941.....	43,783	31,226.06	0.71
1942.....	6,627	5,202.20	0.79
1943.....	5,268	4,292.61	0.81
1944.....	2,111	1,623.16	0.77
	292,960	223,329.30	0.76

ALBERTA AND EASTERN BRITISH COLUMBIA

During World War I Alberta "domestic" coals, from the Drumheller and other fields, displaced imported coals in the Manitoba market, but at that time little headway was made by the western bituminous producers in displacing United States bituminous coal. The bituminous operators in Alberta and Eastern British Columbia felt that with some reduction in freight rates they could compete successfully in this market. In 1930 the first Orders in Council designed to help bituminous coal of Alberta and eastern British Columbia to gain access to the Manitoba market were promulgated, granting a reduction in the freight rate. The assistance was limited to coal used for industrial purposes. In 1930 the reduction was one-eighth of a cent per ton per mile; in 1931, one-seventh of a cent per ton per mile, with a maximum of \$1.50 per ton; in 1932 the maximum was reduced to \$1.20; and in 1934 the assistance was fixed at one-twelfth of a cent per ton per mile, with a maximum of 70 cents. Also during the period from 1930 forward, various Orders in Council provided assistance for coal used by the railways at points, roughly speaking, east of Manitoba. Herewith table giving particulars of this assistance:

TONNAGES AND COSTS OF ALBERTA AND BRITISH COLUMBIA CROWNEST COAL MOVED UNDER SUBVENTION TO MANITOBA AND HEAD OF THE LAKES AREA

Year	Tons	Cost	Cost Per Ton
		\$	\$
1930.....	55,474.00	60,298.84	1.09
1931.....	180,990.00	212,539.31	1.17
1932.....	218,668.00	273,574.36	1.25
1933.....	229,204.00	288,263.92	1.26
1934.....	268,297.00	316,151.45	1.18
1935.....	274,971.00	299,411.25	1.09
1936.....	298,602.00	307,104.93	1.03
1937.....	268,544.00	285,556.08	1.06
1938.....	258,718.00	257,890.81	1.00
1939.....	436,092.00	579,132.24	1.33
1940.....	585,276.00	1,033,864.51	1.77
1941.....	865,335.00	1,492,150.55	1.72
1942.....	609,183.00	909,134.25	1.49
1943.....	116,684.00	102,709.35	0.88
1944.....	62,830.57	64,483.85	1.03
	4,728,968.57	6,482,265.70	1.37

There is another type of assistance open to both "domestic" and "steam" coal destined for Ontario points where the freight rate is \$8.00 a ton or more. In 1933 conferences took place between the railways and the Federal Government, resulting in the railways offering a flat rate of \$8.00 to all points in Ontario where the existing rate equalled or exceeded that figure, provided the Government paid a flat subvention of \$2.50 a ton, which would make the freight rate to the consumer \$5.50 a ton; and accordingly P.C. 740, of April 24, 1933, was issued, carrying this into effect. This Order in Council was principally designed to encourage the regular movement of "domestic" coal into Ontario. The table following furnishes particulars of this assistance:

TONNAGES AND COSTS OF ALBERTA AND BRITISH COLUMBIA CROWSNEST COAL
MOVED TO ONTARIO UNDER FLAT RATE SUBVENTION

Year	Tons	Cost	Cost Per Ton
		\$	\$
1928.....	32,101.00	191,323.57	5.96
1929.....	37,115.00	213,136.73	5.74
1930.....	33,049.00	188,008.81	5.69
1931.....	23,483.00	127,565.55	5.43
1932.....	19,116.00	97,340.87	5.09
1933.....	30,531.00	76,326.11	2.50
1934.....	54,868.00	137,172.22	2.50
1935.....	63,802.00	159,506.81	2.50
1936.....	65,229.00	163,075.77	2.50
1937.....	55,277.00	138,195.80	2.50
1938.....	64,056.00	160,144.80	2.50
1939.....	92,207.00	230,523.66	2.50
1940.....	154,737.00	386,850.13	2.50
1941.....	272,643.00	681,622.04	2.50
1942.....	270,100.00	675,268.42	2.50
1943*.....	(-110.00)	(-273.93)	2.50
1944*.....	84.00	210.85	2.50
	1,268,288.00	3,625,998.21	2.86

* Adjustments for previous years

The figures from 1928 to 1932 inclusive include amounts disbursed in connection with test movements to Ontario.

The tonnages moved from 1940 to 1942 are in a considerable measure explained by short supply and wartime demand. In the latter part of 1942 the Coal Controller prohibited shipments to Ontario, but they were resumed in 1945. The flat rate of \$8.00 is still in force. Since 1940 under P.C. 944, already mentioned, bituminous coal for coking has moved with assistance to the Winnipeg Electric Company; the sums paid, included in the first tabulation, are:

WINNIPEG ELECTRIC COMPANY

Calendar Year	Canadian Coal Moved	Amount Paid
	Net Tons	\$
1940.....	50,875.59	31,486.88
1941.....	68,850.02	26,348.76
1942.....	71,246.73	21,096.90
1943.....	61,774.30	18,532.31
1944.....	36,473.26	10,941.97
	289,219.90	108,406.82

Commencing in 1942 the movement of coal from Alberta to British Columbia was extended assistance in the amount of 65 cents per ton. This was due to wartime conditions and the price ceiling. Particulars are:

Year	Tonnage	Amount
		\$
1942.....	4,835	3,142.54
1943.....	101,880	72,075.70
1944.....	116,818	75,934.31
	232,533	151,152.55

A summary of the assistance extended to the movement of Alberta and Eastern British Columbia coal is as follows:

Movement of coal from Alberta and eastern British Columbia east (Manitoba and Head-of-the-Lakes area).....	\$ 6,482,265.70
Movement of coal from Alberta and eastern British Columbia (Flat rate to Ontario).....	3,625,998.21
Movement of coal from Alberta and eastern British Columbia to British Columbia.....	151,152.55
	<u>\$10,259,416.46</u>

SASKATCHEWAN

Saskatchewan producers of lignite coal are in an advantageous position with respect to the Manitoba market. Consequently, when assistance was given bituminous coal moving into Manitoba for industrial use, it was necessary to grant assistance to the Saskatchewan producers so that their various advantages, geographical and otherwise, would not be destroyed. Orders in Council also provided for assistance in the case of Saskatchewan coal moving eastwards in the area between Manitoba and the Head-of-the-Lakes.

Particulars of the amounts paid annually in respect of movement of Saskatchewan coal are as follows:

TONNAGES AND COSTS OF SASKATCHEWAN COAL MOVED UNDER SUBVENTION

Year	Tons	Cost	Cost Per Ton
		\$	\$
1930.....	19,604.00	9,802.82	0.50
1931.....	60,477.00	27,060.87	0.45
1932.....	100,479.00	40,698.22	0.41
1933.....	130,966.00	54,085.12	0.41
1934.....	144,228.00	42,128.51	0.29
1935.....	138,584.00	32,251.99	0.23
1936.....	146,894.00	38,135.52	0.26
1937.....	163,970.00	38,031.88	0.23
1938.....	145,615.00	33,759.96	0.23
1939.....	159,340.00	37,592.44	0.24
1940.....	41,256.00	25,949.43	0.63
1941.....	22,677.00	21,840.05	0.96
1942.....	13,649.00	13,144.46	0.96
1943.....	10,963.00	10,535.17	0.96
1944.....	16,027.00	15,376.91	0.96
	1,314,729.00	440,393.35	0.33

BRITISH COLUMBIA EXPORT AND BUNKERING ASSISTANCE

In view of the assisted movement of Alberta and Maritime coal commencing in 1928, the tariff imposed early in 1931 on the importation of United States anthracite and coke, the increase in the tariff on the importation of United States bituminous coal, and the continuing competition of fuel oil, an appeal was made for assistance on coal exported to foreign countries, and used for ships' stores. As a result, Order in Council P.C. 1302, of May 30, 1931, extended financial assistance of 25 cents per ton to coal producers, and to coal distributors of coal mined in British Columbia and sold as fuel for ships' stores for ocean-going vessels and/or for export to foreign countries other than the United States of America. By Order in Council P.C. 2699, of October 27, 1931, the assistance payable on coal sold for ships' stores was increased to 50 cents per ton, and on coal exported other than to the United States to \$1.00 per ton. Then on May 28, 1934, by Order in Council P.C. 1122, the assistance on coal sold for ships' stores in excess of 60,000 tons was increased to \$1.00 per ton; and finally, on December 5, 1939, by P.C. 3971, assistance on all coal sold for ships' stores was fixed at 75 cents per ton. Particulars of payments are as follows:

TONNAGES AND COSTS OF BRITISH COLUMBIA COAL SOLD FOR EXPORT OR BUNKERING

Year	Tons	Cost	Cost Per Ton
		\$	\$
1931.....	66,130.00	21,058.70	0.32
1932.....	99,340.00	44,652.13	0.45
1933.....	79,584.00	35,528.62	0.45
1934.....	98,419.00	46,590.63	0.47
1935.....	102,493.00	67,261.46	0.66
1936.....	143,324.00	113,324.14	0.79
1937.....	199,650.00	169,650.21	0.85
1938.....	152,727.00	122,726.79	0.80
1939.....	241,083.00	211,083.28	0.88
1940.....	227,227.00	183,173.57	0.81
1941.....	98,701.00	74,025.83	0.75
1942.....	138,734.00	104,050.71	0.75
1943.....	44,309.00	33,232.02	0.75
1944.....	34,940.00	26,204.62	0.75
	1,726,661.00	1,252,562.71	0.73

The only producer benefiting under the foregoing Orders was Canadian Collieries (Dunsmuir) Limited, all of whose mines are located on Vancouver Island. Inland mines could not compete and take advantage of this assistance due to the cost of taking the coal to tidewater.

GENERAL EFFECT OF SUBVENTIONS

The economic results of the assistance thus far reviewed are difficult to evaluate. Prior to the recession of trade in the 1930's, the Canadian coal industry was in a relatively sound position, and the primary effect of subventions was to lessen the severity of the depression. Some coal produced and sold would not have been mined but for the expansion of markets effected by this assistance, but it is unsafe to conclude that all coal moved under assistance would necessarily have been without a market. It may, however, be assumed that some measure of employment was created by this assistance, that increased tonnages at the mines had the effect of spreading operators' costs, and that Canadian railways, particularly on movements from the West, benefited by the scheme.

ASSISTANCE BY STATUTE

There are two statutory measures which encourage the use of Canadian coal, the Domestic Fuel Act, 1927, Chapter 52, and an Act to place Canadian Coal used in the Manufacture of Iron or Steel on a Basis of Equality with Imported Coal, Chapter 6, 1930.

DOMESTIC FUEL ACT, 1927

This Act authorized the Minister of Mines to enter into an agreement for a period not exceeding fifteen years for the construction of coke plants where at least 70 per cent of the coal used would be produced in Canada, the Government agreeing to pay annually the owners of such plants 4 per cent in the case of individuals, and 5 per cent in the case of municipalities, of the cost of construction, the net sum payable to any owner in any year not to exceed \$1.00 per ton of Canadian coals used in the production of coke for domestic use. Three companies took advantage of this Act.

NOVA SCOTIA LIGHT AND POWER COMPANY LIMITED

The contract with the Government was dated April 1, 1928. The total cost of construction was \$300,492.02. From 1929 to 1944 inclusive the plant used 120,029.30 tons of coal. The total subsidy for this tonnage amounted to \$117,481.28.

QUEBEC POWER COMPANY

The contract with the Government was dated April 15, 1930. The total cost of construction was \$608,029.88. From 1929 to 1944 inclusive, the plant used 172,696.91 tons of coal. The total subsidy was \$172,696.91.

B.C. ELECTRIC, POWER AND GAS COMPANY

The contract with the Government was dated June 30, 1932. The total cost of construction was \$1,832,881.82. From 1932 to 1944 inclusive, the plant used 341,935.54 tons of coal, and the total subsidy paid was \$341,935.54.

TOTAL ASSISTANCE

Nova Scotia Light and Power Co. Ltd.....	\$ 117,481.28
Quebec Power Company.....	172,696.91
British Columbia Electric, Power and Gas Company.....	341,935.54
	<u>\$ 632,113.73</u>

AN ACT TO PLACE CANADIAN COAL USED IN THE MANUFACTURE
OF IRON OR STEEL ON A BASIS OF EQUALITY
WITH IMPORTED COAL

This was an Act to implement one of the recommendations of the Royal Commission on Maritime Claims, and provided that so long as the provisions of Tariff Item No. 1019 in Schedule B to the Customs Tariff, permitting a 99 per cent drawback on coal used for making steel, remained in effect, the Government would pay to the manufacturers of iron or steel 49.5 cents per ton on bituminous coal mined in Canada and converted into coke and used by the manufacturer in the smelting in Canada of iron from ore, or in the manufacture in Canada of

steel ingots and steel castings. No company entitled to a drawback under the above tariff item was entitled to the bounty. The only manufacturer qualifying for benefits under this Act was the Dominion Steel and Coal Corporation Limited.

The total payments made thereunder are as follows:

Fiscal Year	Approximate Net Tons of Coal	Amount Paid
		\$
1930-1931	273,148	135,209.23
1931-1932	126,356	62,546.18
1932-1933	118,783	58,797.54
1933-1934	213,841	105,851.40
1934-1935	336,849	166,740.20
1935-1936	390,168	193,133.12
1936-1937	564,695	279,523.96
1937-1938	583,817	288,989.41
1938-1939	369,434	182,869.80
1939-1940	605,909	299,924.93
1940-1941	776,969	384,599.64
1941-1942	765,775	379,058.59
1942-1943	766,144	379,241.26
1943-1944	646,875	320,203.10
1944-1945	709,071	351,000.04
	7,247,834	3,587,688.40

SUMMARY

Having now reviewed the assistance extended the coal industry by Order in Council and Statute, there follows a summary thereof for the years 1928 to 1944 inclusive:

	Tons	Amount
		\$
<i>Assistance by Order in Council</i>		
1. Nova Scotia coal	21,220,370	25,099,528.00
2. New Brunswick coal	292,960	223,329.30
3. Alberta and Eastern British Columbia coal	6,229,790	10,259,416.46
4. Saskatchewan coal	1,314,729	440,393.35
5. British Columbia Export and Bunkering Assistance	1,726,659	1,252,562.71
	30,784,508	37,275,229.82
<i>Assistance by Statute</i>		
6. Domestic Fuel Act (1927) Chapter 52	634,660	632,113.73
7. Coke Bounties Act	7,247,834	3,587,688.40
Total	38,667,002	41,495,031.95

ASSISTANCE BY CUSTOMS TARIFF

Tariffs have been a factor in protecting the Canadian coal producer, and while minor adjustments have been made from time to time, basic changes in the tariffs have been few, and are summarized in the following table covering the

period from 1867 to the present. The table shows the principal tariff rates applicable to coal and coke from the United States and the United Kingdom, imports from other countries being relatively negligible.

CANADIAN CUSTOMS TARIFFS

Cents per Net Ton

—	Anthracite		Bituminous		Coke		Lignite	
	U.K.	U.S.	U.K.	U.S.	U.K.	U.S.	U.K.	U.S.
1867-1869.....	Free		Free		Free			
1870.....	50		50		50			
1871-1878.....	Free		Free		Free			
1879.....	50		50		50			
1880-1886.....	50		60		50			
1887-1896.....	Free		60		50			
1897-1906.....	Free		53		Free			
1907-1922.....	Free	Free	35	53	Free	Free		
1923-1924.....	Free	Free	35	53	Free	Free	Free	Free
1925-1930.....	Free	Free	35	50	Free	Free	Free	Free
1931.....	Free	40	35	75	Free	\$1.00	Free	Free
1932-1939.....	Free	50	35	75	Free	1.00	Free	Free
1940.....	Free	50	Free	75	Free	1.00	Free	Free

The Dominion Government has derived substantial revenues from the duties collected on coal and coke. These revenues, including excise taxes but less drawbacks, for the fiscal years 1928-1929 to 1944-1945 were as follows:

Fiscal Year	Total Net Revenue	Fiscal Year	Total Net Revenue
	\$		\$
1928-29.....	5,630,152	1937-38.....	9,304,937
1929-30.....	5,747,931	1938-39.....	8,087,713
1930-31.....	5,322,330	1939-40.....	8,350,871
1931-32.....	7,288,935	1940-41.....	13,504,953
1932-33.....	6,492,316	1941-42.....	19,812,160
1933-34.....	7,439,142	1942-43.....	21,376,151
1934-35.....	8,678,754	1943-44.....	26,424,926
1935-36.....	7,849,809	1944-45.....	25,060,971
1936-37.....	8,722,263		

It is widely accepted that the central parts of Canada have received relatively greater benefits than the eastern and western sections from the Canadian policy of protective tariffs. In the case of the coal tariff, however, the benefits have gone solely to the eastern and western sections. The history of Canadian coal tariffs has been closely associated with the Nova Scotia producing industry. The major changes in the tariffs on bituminous coal were primarily made to assist the marketing of Nova Scotia coal. Based on the periods when these changes were made, a concise history of the various tariff rates imposed from time to time follows.

1867-1878

The first tariff on imported coal was in 1870, when 50 cents per ton was imposed on coal and coke. The duty was removed the following year, in view of protests from consumers in the Provinces of Quebec and Ontario.

1879-1898

In 1879, as a part of the policy designed to encourage the growth of Canadian industry, a tariff of 50 cents per ton was imposed on all imported coal and coke.

In the following year the tariff on bituminous coal was increased to 60 cents, and coke used for manufacturing was placed on the free list. These tariffs were designed to encourage the marketing of Nova Scotia coal in Ontario and Quebec and originally enabled Nova Scotia coal to be sold in competition with United States bituminous at least as far west as Toronto. In 1878, before these tariffs were applied, sales of Nova Scotia coal in Ontario and Quebec totalled 94,000 tons. By 1898 sales had increased to 600,000 tons, or about 40 per cent of total sales of Nova Scotia coal. In 1887 the tariff on anthracite was removed, and in 1894 coke was placed on the free list. In 1897 slack coal was separately classified under a duty of 20 per cent ad valorem, not to exceed 13 cents per ton. The duty on bituminous was reduced from 60 cents to 53 cents in the same year.

1898-1931

In 1898 Canada introduced its British preferential tariff policy, the preference consisting of a remission of 25 per cent of the duty; this was increased to 33.33 per cent in 1900. In 1904 specific rates were established in place of remissions, and in 1907 the tariff schedules known as British preferential, intermediate and general were established. The establishment of British preferential rates was not accompanied by any changes in the duties applicable to coal imported from the United States. The duty on bituminous slack was made specific at 14 cents per ton, and the duty on other grades of bituminous remained at 53 cents. Anthracite and coke continued on the free list. During and immediately following World War I an additional excise duty of 7.5 per cent (5 per cent under British preference) was applied to imports of bituminous coal and coke, but not to anthracite coal. This excise tax was in effect from 1915 to 1919. Lignite coal was first separately classified in 1923 and placed on the free list. Bituminous slack ceased to have a separate classification, and in 1925 all bituminous was included in one item of 50 cents per ton.

1931-1939

In 1931 the tariff on bituminous coal was increased from 50 cents to 75 cents, excepting the case of British preferential tariffs, where the 35 cent rate continued to apply. This increase appears to have been necessary in order to maintain the competitive position of Nova Scotia coal. The imposition in 1931 of a 40 cent per ton duty on American anthracite (increased in 1932 to 50 cents) while anthracite imported from the United Kingdom remained free, influenced a shift in a large portion of the anthracite trade from the United States to Great Britain. Before the inception of this preference American anthracite predominated in the Canadian market, but with the assistance of the tariff British anthracite captured a very substantial portion of the sales, but lost practically the whole market during World War II.

It has been mentioned that during World War I an excise tax of 7.5 per cent ad valorem was placed on the importation of bituminous coal and coke for a few years. In 1931, with the need to increase Federal revenues, an excise tax of 1 per cent was imposed on all imports by a special revenue act. This tax was raised to 3 per cent in 1932 and, insofar as coal was concerned, applied to the duty-paid value at the mine. While this tax may have been applied as a means of raising revenue, it had the same effect as an equivalent increase in the tariff rates insofar as protection was concerned. In 1934 the excise tax was reduced to 1.5 per cent and in 1935 entirely removed from goods entering Canada under British preference. The 3 per cent excise tax was removed in respect of imports from United States under the 1939 trade treaty.

1939-1946

In June, 1940, a 10 per cent war exchange tax was placed on goods imported into Canada other than under the British preferential tariffs. In December of the same year, under the War Exchange Conservation Act, the tariff was removed

from British bituminous. In January, 1942, the war exchange tax and the 50 cent duty were removed from water-borne American anthracite entering the ports of the Maritime Provinces. In 1942 the war exchange tax and the duty on American coke imported into Canada for some purposes were removed. The war exchange tax was removed from imports of anthracite in January, 1945, and finally, about five months later, the tax was removed from all imports of coal and coke.

TARIFF DRAWBACKS

Prior to 1931, while coke was admitted to Canada free of duty, there was a tariff on United States bituminous coal. In 1907 Canadian manufacturers using imported coal for making coke were relieved of this anomaly by the enactment of Tariff Item 1019, which provided a drawback of 99 per cent of the duty paid on bituminous coal imported by proprietors of coke ovens for manufacture into coke for use in the smelting of metals from ores. With slight modification, this item has remained in force until the present. The tonnages involved under this item increased from less than 500,000 annually to about 750,000 tons annually during the 1930's. During World War II this figure increased to over two million tons per year. Tariff Item 1049 introduced in 1925 provided for a drawback of 99 per cent on bituminous coal imported by proprietors of by-product recovery coke ovens and converted into coke at their ovens. This item was revised in 1934 and again in 1935. At present it provides a drawback of 50 per cent of the duty paid on imported bituminous coal converted into coke to be sold, and 99 per cent if 35 per cent of the coal used was mined in Canada. The item was introduced at a time when an alternative for United States anthracite was being sought. In the 1930's tonnages qualifying for this drawback were on the average in excess of one million tons per year, but the volume declined substantially during the early years of World War II, increasing somewhat quite recently. Other drawback items have been provided for bituminous coal imported for special purposes, but the tonnage concerned seldom exceeded 60,000 tons in any year.

TARIFF IN TERMS OF LAID-DOWN COST

While the tariff of 75 cents on bituminous coal may appear substantial in relation to the cost f.o.b. mine, for comparison with tariffs on other commodities it should be measured in terms of the laid-down cost. At the present time, taking a typical United States bituminous coal, the mine cost might be \$3.00 per ton, but with transportation charges the laid-down cost, without tariff, at, say Toronto, might be \$6.00. Consideration of laid-down cost is particularly important in the case of coal because the transportation costs normally make up a substantial portion of the cost to the consumer.

OTHER COUNTRIES

Government assistance has been given to the coal industries of many countries including Germany, Poland, France, Belgium, Czechoslovakia, Spain, the United Kingdom and the Union of South Africa, and has taken various forms, including payments to support wages, subsidized exports, customs duties and subnormal freight rates. Within the last twenty years the coal industry in the United States has received practically no direct financial assistance or indirect assistance by customs tariffs.

CHAPTER XIV

RECOMMENDATIONS

By THE CHAIRMAN AND MR. JUSTICE McLAURIN

In the preceding chapters we have examined in some detail the supply and use of coal in Canada. In the course of that examination we have made a number of suggestions concerning a variety of matters. It is now our intention to review the outstanding features of the Canadian coal market, and make some specific recommendations concerning Canadian coal policy.

Canadian Coal Market

From coal is obtained about three-quarters of the energy used in the Maritimes, about one-half of that used in central Canada and on the Prairies, and about one-third of that used in British Columbia. The alternative sources of energy, in order of importance for Canada as a whole, are water power, petroleum, wood fuel and natural gas. These alternative sources have a considerable effect on the market for coal; in part their use is complementary to that of coal, but generally they compete with coal. Except for the railways, most of the mechanical energy requirements of Canadian industry are supplied by water power. Hydro electricity is particularly important in the Provinces of Ontario and Quebec, and accounts for the location of many industries in that area. There is probably no comparable area on the North American continent in which water power is as important a source of energy. Despite the importance of alternative sources of energy, coal is, and will probably continue to be, the most important source of energy for railway locomotives and for industrial and domestic heating.

Compared with the use of coal as a source of energy its use by the chemical industry as a raw material is very small. There is no likelihood that a large synthetic liquid fuel industry based on coal will develop in the next few years.

The consumption of coal in Canada has varied over the last twenty years from less than 25,000,000 tons annually in the early 1930's, to nearly 45,000,000 tons annually during World War II. The consumption in any one year has depended very largely upon the level of economic activity. Details of coal consumption by regions for 1937 and 1945 are presented in the following table. The year 1937 is considered to be typical of the pre-war period; the year 1945 is the most recent year for which figures are available. Coal consumption in the immediate future is expected to be somewhat less than in 1945, but substantially greater than in 1937. The figures below are in net tons.

COAL CONSUMPTION IN CANADA

—	Total	Canadian	Imported	Exports of Canadian Coal
1937				
Maritimes	4,400,000	4,200,000	200,000	200,000
Ontario and Quebec	18,400,000	3,700,000	14,700,000	.....
Prairies	6,100,000	6,000,000	100,000	.....
British Columbia	1,500,000	1,500,000	.....	200,000
	30,400,000	15,400,000	15,000,000	400,000
1945				
Maritimes	5,900,000	5,000,000	900,000	500,000
Ontario and Quebec	26,800,000	800,000	26,000,000	.....
Prairies	8,900,000	7,900,000	1,000,000	.....
British Columbia	1,900,000	1,900,000	.....	400,000
	43,500,000	15,600,000	27,900,000	900,000

Coal production in Canada has varied over the last twenty years from less than 12,000,000 tons annually in the early 1930's, to nearly 19,000,000 tons annually in the early years of World War II. The variation in production from year to year has been greatly influenced by variations in coal requirements. Fluctuation over the years in the demand for coal has presented a major problem to Canadian coal producers. The problem of stabilizing the market for coal is very much the same as that of stabilizing the level of employment in all industries, and, while the solution of that problem would be of great benefit to the Canadian coal industry, it is a problem much wider than the scope of our inquiry.

The production of coal in Canada is limited to Nova Scotia and New Brunswick in the East, and to Saskatchewan, Alberta and British Columbia in the West. There is no coal produced in the central part of Canada. The volume of Canadian production is divided more or less equally between eastern and western mines. Maritime mines supply the requirements of the Maritimes and have normally found an outlet for about three million tons in central Canada. Western mines have normally supplied coal requirements of the four western provinces and less than one million tons annually has found an outlet in Ontario, principally for locomotive use. Most of the coal used in central Canada has been imported from the United States. A major question has been the extent to which both eastern and western Canadian coal should be assisted to enable it to move into Ontario and Quebec. It is therefore relevant to consider the factors which have determined the extent to which Canadian coal has entered this market.

Maritime coal marketed in central Canada is mainly waterborne. Western coal reaching the same market is carried entirely by rail. The level of vessel rates for Nova Scotia coal has been such that in terms of transportation costs this coal has been at an advantage over coal imported from the United States. This advantage is off-set to some extent by seasonal navigation on the St. Lawrence river, which imposes its pattern in the operation of mines in Cape Breton. This situation is partially met by stock-piling at the mines during the winter. The western coal producer is at a disadvantage in terms of transportation costs throughout almost the whole of central Canada. The extended rail movement necessary to market western Canadian coal in Ontario and Quebec presents a serious obstacle to the expansion of that movement.

Cost of mining coal in Canada is on the whole higher than the cost of mining comparable coal in the United States. Coal prices f.o.b. mines illustrate the point. In 1939 the f.o.b. mine price of Cape Breton slack coal was approximately \$3.50 per ton. The f.o.b. mine price of comparable slack at various United States mines supplying Canada was about \$1.25 per ton. Since 1939 mining costs in Cape Breton have risen sharply. In the Fall of 1946 the mining cost of Cape Breton slack was about \$7.00 a ton, while the price of comparable slack at United States mines shipping to central Canada was about \$3.00. Though bituminous mine prices in western Canada are somewhat higher than United States mine prices, the differential in price is not itself a material factor. The United States mines supplying Canada have taken advantage of favourable physical conditions to mechanize extensively and produce at low cost. Physical conditions in the Canadian mining areas, with few exceptions, are much less favourable. In contrast to the flat lying seams and shallow land cover in United States mines, operations in Nova Scotia are chiefly in undulating seams at depth and submarine. Many of the bituminous mines in Alberta work steeply pitching seams. In the Prairie mines physical conditions are more favourable, but seasonal variations in demand prejudice low cost operation.

Almost all coal produced in the Maritimes is high volatile bituminous, with a relatively low ash fusion temperature and high sulphur content. While a satisfactory fuel for nearly all industrial purposes including locomotive use, it is

not entirely acceptable in central Canada for domestic use or for some special industrial purposes. The use of New Brunswick coal is restricted by its high ash content. Western high volatile bituminous is a satisfactory fuel for locomotive and industrial use, comparing favourably with competitive United States fuels. Low volatile bituminous coal of a type generally acceptable for domestic use is mined in the west, but has a tendency to excessive friability. Because of its low calorific value, the market for lignite coal is limited. Much of the "domestic" coal mined in Alberta is a suitable fuel for household use but does not store too well in the open. This circumstance largely accounts for the small amount of this coal that has moved into central Canada even with Federal assistance.

Coal Policy in the Past

The coal policy of the Federal Government has been to assist the marketing of Canadian coals in central Canada. Almost continuously since 1879 there have been tariffs against imported coals. At the present time for coals imported from the United States the duty is 75 cents per ton on bituminous and 50 cents per ton on anthracite. Under the British preference United Kingdom anthracite enters free. The tariff assisted Nova Scotia coal to develop a market in the St. Lawrence Valley. The tariff has also assisted western coal to develop and maintain its market as far East as Winnipeg. In the early 1920's there was considerable concern in Ontario as to the adequacy of anthracite supplies, which stimulated an interest in the feasibility of the movement of Canadian coal to central Canada. Test movements of coal from both the West and the Maritimes were undertaken, with the then Board of Railway Commissioners charged with the duty of determining transportation costs, and their ultimate findings indicated that the railways were entitled to published tariff rates for their transportation services. These rates were too high to permit the movement of much coal. With the commencement of the depression and contraction of coal markets, the Federal Government initiated a policy of assistance commonly termed "transportation subventions". The aid was designed to equalize laid-down costs of Canadian coal with United States coal, and thereby assist the furtherance of Canadian coals to some portions of central Canada. In addition, the Federal Government and the railways agreed upon a flat rate of \$8.00 per ton, with a Federal subvention of \$2.50 for the movement of western coals eastward. This special rate was designed primarily to assist the movement of "domestic" coal to Ontario. There was also some assistance given to one operator in British Columbia on coal exported other than to the United States, and on coal delivered for ships' stores. The assistance was administered by the Dominion Fuel Board, and during the middle and late 1930's approximately 1,750,000 tons of Nova Scotia coal and 650,000 tons of western coal were assisted annually at a cost in each case of approximately \$1.00 per ton, or an average annual cost to the Federal Treasury of about \$2,400,000. Although substantial quantities of bituminous coal moved under subvention, the amount of "domestic" coal from western Canada reaching the market in central Canada during these years never exceeded 65,000 tons annually.

With the increased demand for coal during World War II control of supply was necessary in both the United States and Canada. The Emergency Coal Production Board disbursed substantial amounts to Canadian mines as production subsidies for the purpose of maintaining or increasing coal production. The production subsidies to March 31, 1946, amounted to \$22,700,000, of which \$3,500,000 was paid to western mines and \$19,200,000 to eastern mines. We wish to emphasize that the foregoing payments cannot be separated from the Government policy of price control. However, if the level of productivity had been maintained in Cape Breton, the production subsidies that were paid would have been much smaller.

Coal Policy in the Future

It has often been advocated that the Federal coal policy should be to make Canada independent of foreign countries for its coal supply. To achieve independence at the 1945 level of consumption, Canadian mines would have to produce 43,000,000 tons of coal annually, an increase of 27,000,000 tons over their production in 1945. Maritime production in 1945 was about 5,500,000 tons, and the highest production achieved by these mines during the past twenty years was less than 8,500,000 tons a year. It is our opinion that Maritime production of from 7,000,000 to 8,000,000 tons annually could be attained, but a production in excess of 10,000,000 tons would be extremely difficult to achieve. Assuming Maritime production could make available for central Canada 5,000,000 tons of coal, which is unlikely, it would be necessary to provide over 20,000,000 tons from western sources. From the point of view of coal reserves, this is feasible. The cost of moving the coal, however, would be very large, and the laid-down cost of the coal in central Canada would be far in excess of that of imported coal. On the average the laid-down cost would be in the neighborhood of \$5.00 a ton more than that of imported coal. Assuming an \$8.00 freight rate for western coal, and making an allowance for the increased cost of moving a larger tonnage of Nova Scotia coal, the total additional cost of self-sufficiency would be at least \$100,000,000 annually. Independence may be physically possible, but it is too impractical to merit further attention. Central Canada must therefore continue to rely mainly on United States sources of supply.

The impracticality of fully supplying central Canada with Canadian coal does not preclude the movement of some Canadian coal into the market with assistance. It is our view that the coal industry, both in the East and the West, is entitled to some assistance in addition to that provided by present tariff provisions to move Canadian coal into Ontario and Quebec. Having regard to the advantages accruing to Ontario and Quebec under Canada's fiscal policy, assistance to the coal industry in addition to the present tariff is only fair. Moreover, coal mining occupies an important place in the economies of a number of Canadian provinces. Conditions in Nova Scotia would have been much worse than they were during the 1930's if a market for some of its coal had not been provided by transportation subventions. At least 100,000 people are dependent, directly or indirectly, on Nova Scotia coal production; without aid additional to the present tariff the industry will be unable to support that number, with resulting social and economic dislocation. Some dislocation in other coal areas in Canada must also be anticipated if additional assistance is not provided. Furthermore, it is in the national interest to encourage as widespread a distribution of industry as the natural resources of the country will permit. This is particularly true in Canada in view of its geographical characteristics and its scattered populated areas. Finally, the maintenance of a reasonable level of production in Canadian mines may be of special value during periods of emergency.

A combination of transportation subventions and the prevailing tariff is a reasonable means of extending assistance. This combination is preferable to an increase in the existing tariff. An increase in the tariff would widen the market for Canadian coal, but would cause an increase in the price of coal in Central Canada. Aid by subventions avoids an increase in coal prices. Another alternative to subventions is the continuation of production subsidies such as proved necessary during World War II. One disadvantage of such subsidies is that they give assistance to the marketing of coal in areas where the coal would be competitive without assistance. A further disadvantage of subsidies as they were necessarily administered during the war is that high cost producers receive most of the assistance and some producers receive none. As already emphasized, production subsidies are inseparably connected with the policy of price control. We feel that they should be withdrawn completely upon abandonment of price

control. In the light of this review we therefore recommend that aid to the coal industry, in addition to that provided by the present tariff, should in the future be given through transportation subventions.

The question then arises as to how much subvention aid should be given to Canadian coal producers. It is our view that the assistance extended during the 1930's was reasonable, and in recommending a continuation of transportation subventions we urge that assistance must bear a reasonable relationship to the cost per ton of the imported coal that would otherwise be used. Subvention assistance announced as a permanent policy by the Government should materially help progressive coal producers to secure markets in central Canada. In western Canada this policy should result in an advantageous movement of bituminous coal into Ontario for locomotive and industrial purposes. The assistance provided "domestic" producers under the flat freight rate with a subvention of \$2.50 is, in our opinion, about as much as is reasonable. In 1939 waterborne coal from Nova Scotia reached Montreal without assistance at a slightly competitive advantage over imported coal, but with the present high production costs in Cape Breton, and the high cost of transportation up the St. Lawrence, Cape Breton coal at present appears to be at a grave competitive disadvantage in Montreal. It is not our intention to suggest that transportation subventions should be available to aid the recapture of the markets which, prior to the war, were supplied by Nova Scotia producers without assistance. Operators throughout Canada should not be encouraged to rely on subventions if improved methods of production will lower costs. With the necessary contribution from both management and labour there is no adequate reason why the Nova Scotia mines should not recapture the Montreal market without subvention assistance. The principal operators in Nova Scotia propose extended mechanization and predict that in many mines it will raise productivity above the pre-war level. The proposed improvements are overdue. The improvements contemplated will involve a very substantial capital outlay, and the operators, if they are to avoid further Government regulation, cannot look for Government assistance in this connection. If present capital proves inadequate, the security holders themselves must make sacrifices. The union advocated nationalization of Cape Breton mines, principally on the ground that operations would then be more efficiently conducted. The evidence submitted to us fell far short of establishing that nationalization would result in higher productivity.

It is not generally practical to fix subvention aid by statute because the assistance must vary from time to time with changes in the competitive situation. It is exceedingly important that any aid extended should be attended by scrutiny of the efficiency of operations. The fixing of appropriate conditions and the administering of assistance is an assignment of considerable responsibility. Up to the present transportation subventions have been administered by the Dominion Fuel Board, comprised of members of the Civil Service who are more or less occupied with other important duties. We feel that the effectiveness of the Dominion Fuel Board has been limited by the other demands on its members. Accordingly we recommend that a Statutory Board be created with a full-time chairman to keep Canada's energy requirements under continuous review and to advise upon and administer transportation subventions.

Respectfully submitted,

W. F. CARROLL,
Chairman.

C. C. McLAURIN,
Commissioner.

OTTAWA,
December 14, 1946.

Supplementary Note

I think that it may be necessary to afford the Cape Breton mines interim support immediately following the suspension of production subsidies arising out of price control. It may be that, even with the necessary co-operation between management and labour, there will be a short period when, although the productivity of the mines is rising, it will be insufficient to make the coal competitive in the Montreal market. If the productivity of these mines is showing reasonable improvement and if the security holders have made substantial sacrifices and the coal remains non-competitive in the Montreal market, I am of the opinion that the Dominion Government should provide temporary assistance notwithstanding the foregoing observations on subventions and subsidies.

W. F. CARROLL,
Chairman.

By COMMISSIONER ANGUS J. MORRISON

The problems of coal mining in Canada—physical, financial, marketing and labour and management problems—are long standing and fundamental. To ensure the maintenance of such units of the industry as will assure adequate supplies in the areas served or to be served, permit of expansion of production in time of national need, and guarantee these units of the industry being maintained in a healthy financial condition and with ability to pay such wages as will attract and hold labour in the industry, positive action is needed. When the Royal Commission on Coal was created, the war had aggravated the difficulties under which coal mining has been carried on in Canada. It was clearly recognized however that the war had only brought into sharper focus long-term problems, the solution of which cannot be achieved by minor adjustments in policy or organization by the Government or by those in the industry alone.

I do not feel that the review of coal mining in Canada contained in the chapters of the report, and the recommendations based thereon, constitute an adequate approach or are sufficiently basic to place Canadian coal mining upon a sound economic foundation.

To offer practical suggestions and report upon “the problems of, and matters pertaining to, the coal industry in Canada” as directed by the Order in Council appointing the Royal Commission on Coal, I am therefore presenting my views and recommendations on steps needed to establish coal mining in Canada on a sound basis.

Before stating my recommendations, it is essential to point out (as made clear in the main body of this report) that it is not realistic to speak of the coal mining industry of Canada as if it were one industry. There are several different coal mining industries, geographically separated by thousands of miles. Even within one area there are major divisions in the industry by type of coal produced. Each area and each type of coal presents distinct problems, requiring different solutions. The industry as a whole is also made up of many individual and separate entities that have little cohesion. It is necessary to develop not one, but several series of recommendations, to meet these separate series of problems.

There is perhaps only one thing which the various sections of the coal mining industry of Canada have shared in common—the limited extent of their markets close at hand, and their great distances from the principal Canadian markets in Ontario and Quebec as compared with competing United States coalfields, requiring varying degrees of public assistance in marketing. The Dominion Government must continue to have a direct financial interest in coal mining and marketing if these industries are even to continue on their present basis; and in some cases a much greater interest if they are to be placed in a

sound financial position, providing continuity of profitable employment for both management and labour and continuity of supply of this essential raw material for Canadian industrial and domestic use.

The extent of the existing financial interest of the Dominion is, I am sure, not generally realized. Indeed, I feel safe in saying that until the work done by this Commission, a comprehensive picture of the financial assistance extended to coal mining was not available. Unfortunately a complete picture does not exist even now, since the forms of financial assistance have been so varied and complicated that it has been difficult to compile accurate figures on total assistance. For two examples only, the Dominion Treasury has in the last twenty years alone paid out approximately \$40,000,000 in transportation subventions of various types, and almost \$4,000,000 in bonuses on the use of Canadian coal for coke for steelmaking. These examples do not include the special wartime subsidies related to the maintenance of price ceilings, and to stimulate production, or various minor peacetime disbursements. By far the greatest proportion of these expenditures has been for the support of coal mining in Nova Scotia, but all areas of Canada have drawn upon the Dominion Treasury.

Obviously a government financial interest of this magnitude requires adequate protection, both in administration and in the management of the operations receiving the benefit. Operations substantially supported by public funds cannot be regarded as purely of private concern in all other respects. My first recommendation, therefore, is the establishment of a Board under which can be centralized all forms of financial assistance rendered by the Dominion to the coal mining industries of Canada, and through which Dominion Government policies respecting coal mining and marketing can be administered. Only by the establishment of one central agency of this nature can a clear picture be obtained of the position of the coal mining industry, and adequate steps be taken both to assist the industry and to protect the public interest.

Such an organization does not exist at the present time: the existence for the past twenty-five years of a body entitled "The Dominion Fuel Board", which although originally conceived along fairly broad lines has in latter years been primarily the supervising body for distributing one form of financial assistance, should not be allowed to lead to the belief that a body of the nature I suggest is already available.

The exact form of organization of such a Board, and the functions which it should fulfill, are a matter of importance, which must be dealt with in some detail. To appreciate many of the points which I shall make in connection with the organization and functions of this Board it is necessary first to proceed with comments on the present forms of financial assistance extended by the Dominion Government, the problems of the regional coal industries of Canada and the steps which are necessary to solve these problems. I will therefore proceed to deal with these matters before going into the constitution of the Canadian Coal Board.

The separate coal mining industries of Canada can be roughly divided as follows:

- (1) Nova Scotia—New Brunswick.
- (2) Alberta (with British Columbia Crowsnest) "steam" coal mines.
- (3) Alberta "domestic" coal mines.
- (4) Saskatchewan.
- (5) Vancouver Island.

Financial assistance has been extended by the Dominion to coal mining in all of these areas. In Saskatchewan, Alberta and eastern British Columbia, assistance has been almost entirely in the form of transportation subventions to enlarge the market area in which Canadian coals could compete with imported supplies. There has, however, in these areas been some assistance given by

way of subsidies for the purpose of keeping mines in operation when coal was in short supply. In Nova Scotia, New Brunswick and Vancouver Island, in addition to subvention assistance, large sums have been provided by the Dominion Government as subsidies and in other forms to permit the companies concerned to continue in operation.

Under all counts, whether of production efficiency, expansion of markets or labour-management relations, the situation in the Province of Nova Scotia is much worse than in any other part of Canada. Extraordinary steps are required if the Nova Scotia mines are to be put into any reasonably competitive position in relation to other sources of supply. Before dealing with the Nova Scotia problems, therefore, I shall review the situation in the other areas, where the industry has dealt with its problems with some appreciable success.

ALBERTA (INCLUDING BRITISH COLUMBIA CROWSNEST) STEAM COAL MINES

The "steam" coal mines of the Province of Alberta, together with the British Columbia side of the Crowsnest Pass field, form a major unit of the Canadian coal industry, its production in recent years having been in the neighbourhood of 5,000,000 tons per annum, or between a third and a quarter of total Canadian production. Generally speaking, the technical factors affecting production are favourable, mining methods modern, financial position strong, and productivity of the labour force high by Canadian standards. The major problem in connection with these mines relates to marketing, and the approach to this is simplified by the fact that 75 per cent of the output normally goes to two large purchasers, namely the Canadian Pacific Railway Company and the Canadian National Railways.

The principal difficulty of operators and men alike is achievement of a relatively stable level of operations instead of violent fluctuations through peaks and depressions which have characterized this industry in the past. In the Prairie Provinces coal, like practically all other business, is tied closely to an agricultural economy which has been subject to great fluctuations. The volume of rail freight and in consequence demands by the railways for coal will continue to fluctuate in accordance with such factors as the size of crops and the value of farm products, but it is not necessary for these fluctuations to be allowed to govern the continuity of employment of the thousands of men dependent for their livelihood upon mining railway coal.

This difficulty would be largely met if the railways would co-operate with the industry by planning purchases on a long-term basis, equalizing these purchases as far as possible over a period of years, taking care of short-run variations in their requirements by additions to or deductions from stock piles. This would involve some additional handling charges but against this, however, must be offset the saving in production costs which could be achieved if the mines were able to plan their operations at a more constant level. If the railways were persuaded or required to even out their purchases, more efficient equipment for the stock-piling of coal could be installed, so that the addition to handling charges need be by no means as great as figures which have sometimes been quoted on the basis of present loading facilities.

The exact costs that would be involved in a purchasing policy by the railroads to achieve these ends require further detailed study and are a subject not covered adequately by this Commission. I am convinced however that such extra costs would prove to be relatively slight. Consideration must be given to the added capital cost of stocking excessive amounts of coal through successive lean crop years. If it were thought unreasonable to ask the railroads to assume this additional burden, while the offsetting benefits would accrue to the mine operators and labour, government support of the same nature as that now extended to promote the stability of marketing of agricultural products should be granted.

While in the greater part of the market now served by the Alberta steam coal mines the Canadian coal holds a natural cost advantage over imported coal, a proportion of the market which they have enjoyed is in areas where their position is marginal and demand for the Canadian coals made effective only through the assistance of transportation subventions.

Attention is drawn to the need for assurance that the subvention policy as laid down will not be rendered inoperative as far as the western mines are concerned by payment of all available funds to assist movements in other parts of the country, merely because the other claims are presented first. As long as it is considered in the public interest that transportation subventions shall be available to ensure the competitive position of the western steam coal mines over a given area, adequate funds to carry out this policy must be ensured. It has frequently been found in the past that, although subventions were theoretically available, when the western operators came to apply the funds provided for subventions had already been exhausted.

There have also been frequent changes in subvention policy from year to year; in any event they have been maintained on a short-term yearly basis. The disadvantages of this lack of stability are obvious. The absence of a firm long-term government policy prevents the operators from planning ahead; there is also a natural reluctance on the part of consumers in subvention areas to draw upon sources of supply which are made uncertain from year to year by changes in government policy. The policy of subvention assistance should apply alike to railways and industrial consumers of western steam coal.

ALBERTA DOMESTIC COAL MINES

Those Alberta mines producing what are loosely described as "domestic" coals face an entirely different set of circumstances to those applying to the steam coal mines. Whereas the bulk of steam coal output goes to two large customers, domestic coal output is spread among thousands of customers. It is therefore not possible to approach marketing problems, and the production problems directly related thereto, on a basis of negotiations with a few large consumers as in the case of the steam coal mines.

Like the steam coal mines, the domestic fields are tied to the agricultural economy of the Prairie Provinces, so that demand varies according to crop conditions and the resultant ability of the western population to purchase coal. Variable winter weather conditions also affect domestic coal consumption. In addition to these variations from year to year, there is a great seasonal fluctuation in demand. Mines must be organized with capacity to serve peak demands. Many of the domestic coals cannot be stored in the open for long periods, because of deterioration and the danger of spontaneous combustion. This makes it necessary that the mines operate on the basis of producing only sufficient to fill current orders. Normally, prior to the later war years, the domestic mines have operated for only six to eight months in the year, practically closing down from early February until about the middle of July. The high cost of maintaining productive capacity, sufficient to meet peak demands, in idleness through these months has frequently made the return on the capital in the industry insufficient from the viewpoint of returns to investors, and insufficient to enable adequate investment in modern machinery. The mine workers must seek other employment in this idle season or be the recipients of government relief, and this is not only objectionable from their point of view, but disrupts the efficiency of the mining force. The primary problem of the domestic mines is to find marketing and distribution techniques which will reduce the heavy seasonal fluctuation normally existing.

As in the case of the western steam coals, over most of the Prairie Provinces domestic coals can be marketed with a natural cost advantage in relation to imported coal supplies. To enlarge the market area for Alberta domestic coals, however, transportation subventions are essential.

It appears unlikely that the buying habits of the Prairie consumers of Alberta domestic coals could be sufficiently changed to permit the operation of the mines on a stable annual basis, as contrasted with the heavy seasonal variations of the past. The problem is therefore one of finding a new market for Alberta domestic coals which will take its coal during the present slack season of February to July. Such a potential market does exist, and could be directed to the Alberta domestic coals at comparatively slight expense. This market is in northwestern Ontario, which is outside the competitive area of the Alberta domestic producers under present transportation subvention arrangements. In this area, served at the present time from United States mines, storage facilities are already available for storage of the western coals, the time taken for transportation providing in itself part of the covered "storage" required. If the demands of this area were diverted to the Alberta domestic mines, the time lag between production and delivery would be such that the demands would fall upon the Alberta mines during the present slack season and the coal be received approximately at the season when this area is now accustomed and finds it necessary to receive supplies. There need be no dislocation in the buying habits of the consumers.

It is recognized that the demand from this area would probably not be sufficient to continue mining operations in the Alberta domestic mines in the February to July season at the same level at which they must now operate during the other months of the year to meet demands from their major markets. The northwestern Ontario demand would, however, enable the Alberta domestic mines to maintain a sufficient volume of production to justify keeping the mines in operation where in the past they have closed down and laid off their staff except maintenance men. With this assurance of the practicability of maintaining production, the producers could in turn co-operate by concentrating their development work in the February to July period, thus further minimizing the present seasonal peaks and depressions, producing more stable employment conditions and reducing production cost per ton by regularity of operation.

It is suggested that to achieve these desirable ends the transportation subvention policy be extended to enable the marketing of Alberta domestic coal competitively in northwestern Ontario, and that these subventions be made available on a seasonal basis to ensure placing these new production demands on the mines during the season when they are now largely closed down. It would appear desirable to set up a central selling agency to keep distribution costs to a minimum; this however should be the responsibility of the operators who have coals suitable for shipment into this market.

The benefit of these measures would accrue principally to the Drumheller, Lethbridge, Coalspur and Saunders fields.

The Edmonton field does not ship any substantial proportion of its output to the Saskatchewan or Manitoba markets. Stabilizing of operations in this field therefore depends upon developing year-round demand in the area now served by these coals.

SASKATCHEWAN

The nature of the coal produced in the Saskatchewan field is such that this industry is not adapted to seeking markets beyond the area which it is now serving, namely southern Saskatchewan and Manitoba.

There has been a remarkable growth in Saskatchewan production in recent years, achieved through increasingly efficient production methods, and an effective campaign to educate potential consumers in the technique of using lignite coals. Generally speaking, the coal mining industry of Saskatchewan can be said to be on as sound a basis as any of the coal mining industries in Canada.

VANCOUVER ISLAND

Production of the Vancouver Island fields has declined steadily for the past twenty years. The major factor in decline of demand for Vancouver Island coals has been competition offered by oil, which has won former export markets and entered into the home market, both in industrial and domestic consumption. Bunkerage demands have largely fallen off due to the same competition.

It must be recognized also however that the problems of the Vancouver Island fields are to a considerable measure production problems. Mining conditions are more difficult than in any other part of Canada. The exhaustion of the most favourable seams and areas has increased their engineering problems, and inevitably increased their costs.

Dominion Government assistance already extended to Vancouver Island mines includes production subsidies, subsidies on coal delivered for ships' bunkerage, and subsidies designed to promote the use of Vancouver Island coals in coke production.

To the extent to which it might be decided as a matter of national policy that production from Vancouver Island fields should be maintained, it would appear that there is little remedy that can be found other than through continuation and extension of public assistance, either in the form of subsidies or protective policies designed to reduce competition offered by imported oil. It must be recognized however that the effectiveness of such policies would be limited, in that it is outside the power of the Canadian Government to restore the export and bunkerage markets for coal which formerly existed.

It must be remembered that the Vancouver Island coal field played a very important part in the war emergency, and that it still is the only coalfield on the Pacific Coast that has available facilities and supplies for taking care of Pacific demands. From the standpoint of security in a national emergency, Vancouver Island has assumed a new importance; during the war years excellent bunkering facilities were provided, not only for the handling of their own product but also for the shipment of coal brought in from the Mountain regions of Alberta and British Columbia.

NEW BRUNSWICK

Although New Brunswick coal production constitutes only about two per cent of total output of coal in Canada this production is of importance to the market that it serves. This market has been limited almost entirely to local use within New Brunswick, and production has not been greatly affected by changes in tariffs or introduction of transportation subventions. The principal users of New Brunswick coal have been the railways, the pulp and paper industry and power plants.

Mining operations have been subject to severe fluctuations, with numerous small producers whose operations are intermittent.

The problem of the New Brunswick coal producers is not to develop new markets, due to the limited reserves, but to hold the markets that they have now. New Brunswick coal stands in relation to Nova Scotia coal in very much the same position that Nova Scotia coal stands in relation to supplies imported from the United States. There are few areas in which it holds any advantage over Nova Scotia coal other than that which has been given in the past by a price differential related to production costs. This price differential was to a considerable extent based upon lower wage scales and has largely disappeared within the last few years.

Due to the physical conditions of the coal seams, cleaning of the coal at the face does not produce a satisfactory product, and while it is appreciated that the financial position of the many small companies does not warrant their under-

taking heavy capital expenditures, I would suggest that thought should be given to the setting up of a central cleaning and preparation plant to improve the product and its competitive position.

NOVA SCOTIA

While there are other operators, the coal mining industry of Nova Scotia consists mainly of the operations of subsidiaries of the Dominion Steel and Coal Corporation.

The problems of the Nova Scotia coal mining industry are more serious than those of the industry in any other part of Canada. In addition, the Dominion Government is more directly concerned with the Nova Scotia coal mining industry, from the viewpoint of public finance, in that the degree of public assistance to the Nova Scotia operators is far greater and more direct in character than in any other part of Canada.

Prior to the War Federal financial assistance to coal mining in Nova Scotia was substantially the same in nature as that extended to coal mining in other parts of Canada, namely transportation subventions to extend the market area in which the Canadian coal could compete with imported coals. There were some other forms of assistance available in the pre-war years. An Act of 1930, for example, provided for payment of a bonus on Canadian coal converted to coke and used in the manufacture of iron and steel. This was a measure authorized by Act of Parliament which, while theoretically available to promote the use of Canadian coal from all sources, was in effect of assistance to the operations of Dominion Steel and Coal Corporation alone, and has bonused this Corporation to the extent of some \$4,000,000 since 1930 for using coal produced by its own subsidiaries. This and other measures are discussed more fully in the following section on Financial Assistance.

The most important feature of Dominion assistance to the coal mining industry of Nova Scotia is one which has developed during the war years. Under the stress of wartime conditions, coal mining in Nova Scotia would not only have failed to meet the demands of the Canadian economy upon it but would probably have collapsed had it not been for greatly increased Federal financial aid in a variety of forms. This Commission is concerned with the future of the coal mining industry of Canada, not with a review of wartime measures made necessary to meet emergency and exceptional conditions. The significance of the special wartime assistance to Nova Scotia operators, however, is that it appears impossible that this assistance can be terminated within any short period of time without a collapse of production and employment. It appears unlikely that the industry can even return to its pre-war position without major changes in organization.

It must be recognized that the immediate pre-war position of the coal mining industry in Nova Scotia was precarious. The industry had suffered from a long period of decline, the peak of production having been reached over thirty years ago. While transportation subventions had given marginal assistance to the coal mining industries of other parts of Canada, in the case of Nova Scotia they were of much greater importance. Over 25 per cent of the coal produced in the last five pre-war years was marketed only with subvention assistance—34 per cent in 1939. To say that labour relations have been poor would be an understatement. Productivity is now lower than in any other Canadian field and much lower than in competitive U.S. fields, and production costs are correspondingly high. A combination of poor labour relations and antiquated production methods (with the possible exception of Old Sydney Collieries) had brought the industry to a point where it appears safe to say that it would have been at the point of collapse within a very few years; wartime pressure merely speeded up the process of disintegration already under way.

The coal industry of Nova Scotia is of primary importance in the industrial life of that Province, and particularly so when account is taken of the steel industry of Nova Scotia which is directly dependent upon it. So large a segment of the industrial economy of the Province and the country cannot be allowed to collapse—or to be temporarily prevented from financial collapse only at the expense of the working force and of the consuming public. Any suggestion that the industry needs only the removal of the remaining wartime controls to achieve economic soundness should be carefully examined in the light of its past history. It is noteworthy that as recently as last year, when a development program for the Acadia Coal Company Ltd. (a subsidiary of Dominion Steel and Coal Corporation Limited) involving an amount of only around \$1,000,000 was put forward, the Company sought (and received) government financial guarantees before they would proceed with the work. For the expenditure of the several millions of dollars which is required if physical rehabilitation of the mines is to take place on a wider scale, there is reason to doubt that the situation would be different.

As noted above, I believe that sudden withdrawal of the subsidies started during the war period, and failure to undertake basic physical re-organization measures, will mean inevitable collapse of this industry. I therefore recommend that the Dominion Government should be prepared to continue a degree of subsidy assistance to the coal mining industry of Nova Scotia after the expiration of the emergency wartime powers under which such subsidies are now administered. However, I feel that the Federal Government has a direct claim upon the industry to take all necessary steps for re-organization on a more efficient operating basis, to reduce to a minimum its drain upon the Federal Treasury and to restore it as quickly as possible to its own feet. The existence of such a claim does not rest upon continuation of Federal financial aid; it exists now by virtue of past public assistance and in the interests of the national economy.

Strong recommendations were made, particularly by the trade union organizations of the Maritime Provinces, that the coal industry should be nationalized.

Because of Government subsidies various Nova Scotia coal mining operations have been enabled to continue with inefficient technical methods and with labour policies which have brought about what can only be described as industrial warfare. In spite of this analysis of the situation, I cannot agree that nationalization is a desirable solution. In itself it would not solve the problems which now face coal mining in Nova Scotia. I believe that the situation should be considered as a challenge to private enterprise, and that Government assistance should be continued subject to the private interests making a genuine effort to re-organize this operation. If such an effort were genuinely made, I am convinced that productivity of labour could be greatly increased and substantial progress made in combating the technical difficulties which have raised production costs to such a high level. If this were done marketing problems would be substantially relieved.

It is no part of my Commission to speak regarding the other activities of the Dominion Steel and Coal Corporation, but with respect to coal mining I consider it essential that:

1. The coal operations should be conducted on a commercial basis and coal mining should not be called upon to subsidize other operations of the Dominion Steel and Coal Corporation or be subsidized by them through arbitrary establishment of prices paid for coal at uneconomic levels.
2. Antiquated and inefficient production and handling methods must be re-organized to achieve lower costs. This is essential, and quite possible by application of techniques which are already well recognized and tested by other coal operators. Engineering studies of the coal

operations of the Dominion Steel and Coal Corporation have revealed the inadequacy of present facilities even at points where the difficulties of undersea mining conditions so frequently mentioned by the Corporation have no relevance, such as for example in cleaning, sizing and bankhead facilities.

In view of the intensity of feeling of Nova Scotia coal mining labour against the present management of the Dominion Steel and Coal Corporation, I cannot pass without direct mention of the admittedly difficult problem stressed in evidence before the Commission of obtaining the co-operation of labour in any plans for re-establishment of the industry on a sound economic basis. Before this Commission, it was flatly stated by representatives of the men that they so distrusted the present management that they could see no hope for a reconciliation and real co-operation between men and management in improving the efficiency of production. I believe that the demand for nationalization of the coal mines of Nova Scotia is primarily a demand to get rid of the present management. The organization of Dosco has been such that there has been every reason for the men to become confused, failing to see clearly the position of the industry and to believe that it was in reality making large profits.

Additional steps are necessary to end the industrial warfare which has now been going on in the Nova Scotia coalfields for generations. Reference of questions affecting the men to Montreal should be reduced to the absolute minimum. The personnel policies of the coal operators should be clearly formulated, fully publicized, and adhered to. They should be administered by officers, trained in personnel work, with authority second only to that of the general managers of the operations and should be enforced upon officials as well as upon the men. The men on their side must give the management, when so re-organized, their full co-operation in increasing productivity by mechanization or modernization, in avoiding casual or frivolous work stoppages in breach of contract, and in negotiating for new contracts promptly and in the true spirit of collective bargaining. Unless these readjustments can be made by both sides, the collapse of the industry appears to be inevitable.

If these readjustments are made, however, there is every reason to be hopeful for the future of coal mining in Nova Scotia. The great need is for increased productivity per man-day. The already low pre-war productivity of 2.54 tons per man-day had fallen to 1.5 tons by 1945. With management committed to introducing and carrying out mining techniques already proved in other fields, and with employees committed to co-operate, there is every reason why pre-war productivity can be not only restored but exceeded, and this great section of the Canadian coal industry rehabilitated.

Nationalization would not necessarily improve the position of the mines or prevent ultimate collapse of the industry. An unsound industry cannot survive indefinitely, and nationalization provides no magic lamp. The facts of wages and working conditions are what count, and if they can be placed on a satisfactory basis under private ownership, the ends of the men will have been met, and I believe that the men will so recognize, even though the unfortunate experiences of the past have led them to think otherwise at the moment.

From the operators' view point, I believe as mentioned previously that the situation should be regarded as a challenge to private enterprise, and the contemplated re-organization considered, not a drastic step forced upon the management, but as a less drastic step than that which will inevitably result if they fail to end the industrial warfare and increasing costs which have been developing in seriousness for so many years.

Mining Machinery

With a view to reducing coal mining production costs I would urge a review of customs duties on production equipment and essential supplies of this industry.

The principle that production equipment and essential supplies required for basic industries should be accorded free entry into Canada, or given a drawback of customs duties when used for such purposes, has been given widespread recognition in the Canadian customs tariff. Unfortunately this principle does not seem to have been applied to coal mining as generally as in the case of some other industries. While certain types of equipment enter Canada duty free, in other cases customs duties are high. A few examples of customs duties on equipment and supplies for coal mining—including as will be noted types of equipment which are “of a class or kind not made in Canada”—are as follows:

Tariff Item		British Preferential Tariff	Inter-mediate Tariff	General Tariff
410a	Face loading machines, shaker trough or belt trough conveyors, air engines, flame proof enclosed driving motors, of a class or kind not made in Canada, and integral parts of all motive power or machinery mentioned in this item, for use exclusively at the face in mining operations.....	Free	10 p.c.	12½ p.c.
410b	Machinery and apparatus for use exclusively in washing or dry cleaning coal at coal mines or coke plants; machinery and apparatus for use exclusively in producing coke and gas; machinery and apparatus for use exclusively in the distillation or recovery of products from coal tar or gas; and complete parts of all the foregoing, not to include motive power, tanks for gas, nor pipes and valves 10½ inches or less in diameter.....	Free	10 p.c.	12½ p.c.
410l	Ore crushers, rock crushers, stamp mills, grinding mills, rock drills, percussion coal cutters, coal augers, rotary coal drills, n.o.p., and complete parts of all the foregoing, for use exclusively in mining, metallurgical or quarrying operations..... —Under U.S.A. Trade Agreement.....	5 p.c.	20 p.c. 17½ p.c.	25 p.c.
410n	Diamond drills and core drills, not including motive power, electrically operated rotary coal drills, and coal cutting machines, n.o.p., and integral parts of the foregoing, for use exclusively in mining operations.....	Free	10 p.c.	10 p.c.
ex 410o	Chock release apparatus, for use in coal mines to facilitate the safe removal of chocks forming the roof support....	Free	10 p.c.	10 p.c.
410r	Power driven reciprocating pumps and complete parts thereof, designed for normal working heads of 400 feet and over, for use exclusively underground in mines.....	15 p.c.	25 p.c.	27½ p.c.
410y	Heavy duty mine hoists, of a size and capacity not made in Canada.....	Free	5 p.c.	10 p.c.

There is a point of importance arising from the preferential treatment accorded imports from countries entitled to the British Preferential Tariff. This has been of particular interest to the mines of western Canada, where United States mining methods are more generally practised, but as mechanization progresses eastern Canada may be likewise affected. There are many technical differences between United Kingdom and United States methods of production. Mining machinery from the United Kingdom, designed for use in the longwall mining conducted in that country, is generally unsuitable for use in room and pillar mining prevalent in the West. For such mining methods the only machinery available is manufactured in the United States. Where technical factors make necessary the use of equipment from the United States the higher rates applicable to imports from that country cannot confer any benefit upon suppliers in the United Kingdom. They merely increase production costs, or prevent mechanization.

Apart from rates of duty, difficulties are also presented by administrative rulings of the Department of National Revenue, which have classified various items of equipment which are integral parts of mining machinery under tariff items which carry even higher rates of duty than those applying to mining machinery.

Many of the items upon which high rates of duty are levied are not manufactured in Canada, and moreover it appears unlikely that they will be in view of the relatively small demand in this country for such equipment.

I recommend that these tariff matters be referred for study to the Government Departments concerned with customs duties, and an effort be made to bring the cost of mining machinery to Canadian mines more closely in line with the costs of such machinery to competitive mines in the United States.

Imports

The preceding review of problems has mentioned only the production of Canadian coal. Also basic to Canada's coal problem is the question of the extent to which Canada should attempt to become self-sufficient as regards coal requirements. The central Provinces have always drawn upon United States fields: these imports, although an almost insignificant proportion of United States production, have been sufficiently great in relation to Canadian demand that over the years imports have regularly supplied slightly more than half of the consumption of coal in Canada and about 70 per cent of consumption of the central Provinces. The relationship of Canadian production to imports has been remarkably constant for the past forty years, the only two periods of sharp divergence from the general pattern having been in the two periods of war when the demands of industry in central Canada increased sharply, and drew primarily upon United States coal.

It would be a policy of doubtful wisdom to maintain sufficient mine capacity in Canada to meet the peak demands of war and other possible emergency, leaving a large proportion of this capacity idle in peacetime. Such idle capacity would have a depressing effect upon the coal mining industry as a whole. This would be the case even if, by very costly subvention or subsidy policies, the entire normal demands of the central Provinces were directed to Canadian sources of supply. While seeking to extend the use of coal in the central Canada market, under these circumstances we must recognize that there is an area in central Canada which must continue to be supplied in part from United States sources.

Canadian Coal Board

A Dominion Government agency is needed to co-ordinate the administration of Government activities relating to coal now handled by different Departments, to undertake new research work with respect to both technical and marketing problems, and to distribute information thereon. The need for such an organization was emphasized in submissions presented to this Commission by both operators and men, in both eastern and western Canada.

Under this new agency should be centralized all forms of financial assistance rendered by the Dominion Government to the coal mining industry of Canada, so that a clear picture can be obtained of the relationship of Government to the industry, and adequate steps be taken both to assist the industry and to protect the public interest.

The functions of this new agency should include:

- (1) Administration of transportation subventions.
- (2) Administration of direct subsidies extended by the Dominion Government to promote production, distribution, and use of coal for specific purposes such as bunkering and coke production.

- (3) Research into marketing problems and techniques.
- (4) Technical research on coal mining methods, the physical and chemical characteristics of coal, development of new uses for Canadian coal.
- (5) Co-ordination of the activities of other Government Departments such as the Bureau of Mines, the Dominion Bureau of Statistics, and such other Departments as deal with matters relating to coal.
- (6) Publication and distribution of information on coal.
- (7) Provision of a central point through which representations can be made to the Government on problems respecting coal production, distribution and use.
- (8) Advice to the Government on policy respecting coal production, distribution and use.

The status of a Government agency to undertake work of the type just outlined is a matter of importance. The present Dominion Fuel Board as previously noted was originally conceived along fairly broad lines, but in latter years has been almost entirely a supervising body for distributing one form of financial assistance, namely transportation subventions. This Board consisted of civil servants, and the extent of the Board's responsibilities and authority was set out only by Order in Council. It had no statutory authority. I consider that the proposed agency could be given the title "The Canadian Coal Board" and should be organized along entirely different lines. It should be established by statute which will clearly set forth its authorities and responsibilities, and give it a more assured and permanent status than is accorded to organizations established by Order in Council only. It should be made responsible directly to a Cabinet Minister, so that a member of the Government will have a direct responsibility for ensuring that it is operating in accordance with Government policy, and can report to Parliament on its operations. In contrast to the present Dominion Fuel Board, there should be a full time Chairman, who could be held responsible for its efficient administration. A part of the dissatisfaction with the way in which the present Dominion Fuel Board has operated in its restricted field is attributable to the fact that even prior to the war it had ceased to function as a Board because of removals and deaths, and its work seemed to be centred upon a Secretary who could act according to his discretion only within certain regulations.

A large part of the work of the proposed Canadian Coal Board would deal with the expenditure of public funds, and policy relating to such expenditures must of course be a responsibility of the Government. The Board would be an administrative and an advisory body, rather than a policy-making body. It would therefore be appropriate to include upon it representatives of the coal mining industry, employers and employees, as well as of the Dominion Government.

Under the present constitutional division of authority between the Dominion Government and the Provinces, exclusive legislative authority of the Provinces extends to "the management and sale of the public lands belonging to the Provinces", "property and civil rights in the Provinces" and "matters of a merely local or private nature in the Province". Generally speaking this has been interpreted to include jurisdiction over such things as the manner in which coal mines are to be operated, safety measures to be observed, matters concerning wages, hours of work, labour welfare and the settlement of disputes, and marketing practice in so far as sales within a province are concerned. It also includes in the case of provincial lands, authority over the granting of coal leases, and the royalties and rentals to be paid thereunder. Direct taxation of coal mining operations is also, of course, a privilege of the provinces, which can thereby directly influence the course of development of the industry. It can readily be seen that any long-range plan for the coal industry by the Dominion Govern-

ment cannot fail to take into account policies of the governments of the several coal-producing provinces. Likewise, Dominion Government policies concerning coal production are of great importance to the provinces concerned, from the aspects of both maintenance of employment and the financial prosperity of the operators. I therefore feel that it would be highly desirable to enlist the full co-operation of the provincial governments in the development and administration of Federal measures respecting coal, and machinery now exists through which co-operation could be developed.

The financial reserves to be placed at the disposal of the Canadian Coal Board must be provided by authority of Parliament. Estimates should be adequate to carry out steadily the long-term policies that may be determined upon by the Government, rather than having policy arbitrarily varied during the course of a year by reason of inadequacy of estimates. Particular reference to this is made in my following comments on the unsatisfactory situation with respect to administration of transportation subventions in past years.

As already noted, the expenditures of public funds through transportation subventions, and for a while at any rate through the continuation of direct subsidies, will be particularly important functions of the Canadian Coal Board. Separate notes follow on these two items.

TRANSPORTATION SUBVENTIONS

A complete re-casting of the administration of transportation subventions is necessary, to achieve effective results with a minimum expenditure of public funds. Administration of transportation subventions since their inception some twenty years ago has been somewhat unsatisfactory. To understand the principles upon which I consider it essential that payment of such subventions be based in future, it is necessary to refer briefly to the regulations and methods of administration which have applied to date.

Following a brief experimental movement of coal through the assistance of public expenditures, a general policy of transportation subventions was developed at the end of the 1920's. The general purpose of these subventions has been to enable Canadian coal to compete in areas in Canada where it would otherwise not be competitive. A logical overall basis on which subvention payments might have been determined would have been to set geographical limits within which Canadian coal would be made competitive, and provide subvention payments to the extent necessary to move Canadian coal within these limits, with some assurance of consistency in policy from year to year. This would have given suppliers who developed new markets with the aid of subventions assurance that such aid would be available over a period of years; in turn customers would have been given a feeling of security that Canadian coal would continue to be made competitive in their local markets. Unfortunately, no such basis was used. Subvention assistance has varied greatly from year to year. There has never been any guarantee that markets developed by the aid of subventions would be given subvention assistance in a subsequent year if required to make prices competitive. This has prevented long-term development of new markets with any assurance to consumers or operators of continuity of supply on a competitive basis.

Even within the areas and time limits for which subventions might be approved in a given year, it has frequently been found that movements of coal which otherwise qualified were denied subvention assistance merely by the accident that subvention claims filed previously by operators in other parts of the country had exhausted the funds voted for subventions.

Subvention policies and freight rates are necessarily interwoven, and both will materially affect the competitive position of Canadian and imported coals in the areas to which we have already referred.

To enable transportation subventions to achieve the ends for which they were devised, it is necessary that certain principles must govern their provision and administration. These are that:

- (1) Policy be clearly defined and set, rather than left to individual negotiation.
- (2) Consistency of policy be developed, to give some assurance that markets developed in one year will not be left outside the competitive areas of the Canadian producers in a subsequent year.
- (3) Adequate advance commitments be available, to enable producers to plan their sales and develop new customers.
- (4) Adequate finances be provided.

OTHER FINANCIAL ASSISTANCE

Mention must also be made of other forms of financial assistance. These have in most instances been a wartime development, but in some cases had already been in effect for varying periods of years before the war.

It is not easy even to compile a complete list of the forms of subsidy assistance which have been extended to the coal mining industry. Among those in effect prior to the war were a direct subsidy extended to producers in British Columbia, and to distributors of British Columbia coal sold for bunkering or for export to foreign countries other than the United States. The British Columbia export and bunkering assistance involved payments by the Dominion Government in excess of a million and a quarter dollars since 1931 to Canadian Collieries (Dunsmuir) Limited, the only producer benefiting. Under the Domestic Fuel Act, 1927, the building of coke plants to use Canadian coal was subsidized. Subsequently by Orders in Council further assistance was given to stimulate the use of Canadian coal for coking, by providing subsidies to make Canadian coal competitive with imported coals. The Coke Bounties Act, 1930, granted a bonus to persons using coke made from Canadian coal for the manufacture of certain primary iron and steel products. Other peacetime assistance from the Dominion Government might also be mentioned, such as the Maritime Freight Rates Act by which all rail movements of coal (among other products) originating within the Maritime Provinces are directly subsidized by the Federal Government to the extent of 20 per cent of the railways' receipts for freight services.

The Customs Tariff on imported coal and coke is another form of Government assistance to the coal industry.

The foregoing examples are sufficient to illustrate the Dominion Government's assistance to the coal mining industries of Canada. My emphasis on the extent of this assistance is not intended as a criticism of these measures, or a suggestion that they have not been for the good of both the industry and the Canadian economy as a whole. It is directed to making the point that the Dominion Government has a claim upon the recipients of such benefits to conform to requirements of the Dominion Government for the efficient organization of the industry in the national interest; an industry in this position cannot claim that its affairs are purely its own private concern. He who pays the piper still should call the tune.

The foregoing references were to subsidies and other assistance which were extended by the Dominion Government prior to the war. In addition to these, many forms of special financial assistance were extended by the Dominion Government during the war period, through such agencies as the Emergency Coal Production Board and the Commodity Prices Stabilization Corporation. To the extent that such wartime subsidies have now been withdrawn or are in

process of withdrawal I have no comment to offer; they were emergency measures dealing with a situation which is now past, and the interests of this Commission lie with the future.

With respect to certain of these subsidies paid in Nova Scotia, it has already been noted that it appears impossible that assistance can be completely terminated in the immediate future. At the present time the productivity of the Maritime mines is so low, and the cost of producing coal therefore so high, that without some action to reduce costs the market for those coals will be seriously restricted. Until the physical re-organization of the mines to achieve lower production costs can be completed, there may be a need for additional assistance beyond those types extended prior to the war. Such assistance should be given only as a transitional measure, to give the operators an opportunity to undertake the long overdue technical re-organization needed to lower their costs of production.

It is necessary for the efficient administration of such assistance as may be required, to establish machinery to carry on when the wartime control agencies have gone out of existence. I recommended previously that this should be one of the functions of the Canadian Coal Board. The Board should advise the Government upon the steps necessary to ensure that the industry undertake the re-organization of its operations necessary to minimize the amount of such public assistance and eliminate the temporary assistance entirely as soon as possible, and the continuation of Dominion financial assistance in any form should be clearly related to the operators undertaking specified re-organization programs submitted in advance and approved by the Canadian Coal Board.

Failing full co-operation by the operators with the Government by reorganization of their operations, in return for the public aid they have already received and continuation of special financial assistance, the Government would be forced to consider its further course of action.

The coal lands in Nova Scotia are Crown lands in right of the Province, with the operators holding only leases. The proprietary interest of the Province of Nova Scotia in its coal leases is such that any necessary action could better be taken by the Province than by the Federal Government. The fact that the companies concerned hold provincial rather than Dominion charters provides another avenue of approach through provincial channels to any necessary enforcement action. I would hope that the coal operators would recognize that the rehabilitation which I regard as an essential prerequisite for the financial assistance of the Dominion Government is in their own interests. If such recognition should not be forthcoming the attention of the Nova Scotia Government should be drawn to the impossibility of the continuation of Dominion Government financial assistance and the consequences of failure to place the industry upon a sounder basis, and the support of that Government enlisted in bringing about the necessary re-organization.

ACCOUNTING RECORDS

There is great lack of uniformity in the accounting procedures of the coal companies. Some companies maintain elaborate cost records, others have practically no cost accounting system. There is also a wide variation in practice regarding classification of costs, and perhaps of most importance as between operating and capital accounts.

Because of this lack of uniformity, determination of the need for government assistance, through transportation subventions and in other forms, has been rendered particularly difficult. To ensure consistency of treatment as between operators, and to protect adequately the Government's interest in the administration of public funds, I recommend that standardized accounting procedures be prepared, and that all companies receiving government assistance in the distribution or production of coal be required to adhere to such accounting procedures.

I have already recommended that all forms of financial assistance rendered by the Dominion Government to the coal mining industry be centralized under a Canadian Coal Board. Preparation of standard accounting procedures for the mines should be undertaken by this Board.

Working and Social Conditions of the Miners

I have dealt at some length with problems of production and distribution of coal in Canada. To the extent that the suggestions which I have made, and others which might be developed, can be placed in effect and the general prosperity of the industry improved, the mine workers will be assisted in their efforts to achieve higher and more stable earnings. There are however some points concerning working and social conditions in the mine communities which require special mention. Present housing and community facilities in many localities reflect no credit on the industry. Government and employers should recognize that, if men are to remain in or come into the industry, the welfare of the employees must receive much more attention than it has to date.

One abuse to which I must draw particular attention is the "closed camp" which still exists in some parts of western Canada. In such camps the local coal operator controls all land within convenient distance of the mines, owns all housing and controls all stores, hotels and service facilities. Water supply, sanitation and other public utilities are arranged by the coal operator, and are frequently quite inadequate. The people living in these camps should be free to buy or to lease for long terms, land on which to build their own homes; decent standards of sanitation should be enforced; and any person who so desires should be free to conduct a business in such camps under no greater restrictions than those in effect in "open towns". The provincial governments, under whose jurisdiction such matters rest, should take immediate action to this end.

I strongly recommend the creation of industry-wide retirement pension plans for mine workers. The miners in the past have lived in economic insecurity as a result of the wide fluctuations in activity which the industry has experienced. Federal unemployment insurance now reduces this insecurity to some extent but there remains the ever-present spectre of poverty in old age. I therefore stress the desirability of pension plans, to be financed jointly by operators, men and government. Provincial government contributions to such funds could be made from the royalties the provincial governments now collect on coal mined.

Summary

- (1) Because of the widely varying problems of the several sections of the coal mining industry of Canada, it is necessary to develop not one, but several series of recommendations.
- (2) The Dominion Government already has a large financial "investment" in the Canadian coal mining industry, through financial assistance which has been extended in a variety of ways.
- (3) A Canadian Coal Board should be established, to advise the Government on assistance to the industry and protection of the public interest, and to administer such assistance as the Government deems necessary.
- (4) The system of transportation subventions should be reorganized and extended.
- (5) Local adjustments should be made, along lines which I have indicated in this report, to assist in marketing coal from specific areas and to minimize such factors as seasonal fluctuations in activity.
- (6) The customs duties applying to mining machinery and supplies should be reviewed, and so far as possible reduced.
- (7) The Dominion Government should be prepared to continue for a limited period a degree of special financial assistance to the coal mining industry of Nova Scotia, if the operators are prepared to rehabilitate their operations.
- (8) All companies receiving government assistance in the distribution or production of coal should be required to adhere to standardized accounting procedures.
- (9) The provincial governments should take immediate action to eliminate "closed camps".
- (10) Retirement pension plans for coal mine workers should be instituted.

Respectfully submitted,

A. J. MORRISON,
Commissioner.

OTTAWA,
December 14, 1946.

APPENDIX A

PRELIMINARY ESTIMATE OF CANADIAN COAL RESERVES BY
PROVINCES, AREAS AND RANK AS PREPARED BY
DR. B. R. MACKAY FOR THE ROYAL COMMISSION
ON COAL, SEPTEMBER, 1946

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PRELIMINARY ESTIMATE OF CANADIAN COAL RESERVES BY
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TABLE 1.—RESERVES BY PROVINCES

(Thousands of net tons)

Province	Mineable			Recoverable		
	Probable	Possible (Additional)	Total	Probable	Possible (Additional)	Total
Nova Scotia.....	1,967,024	1,147,382	3,114,406	983,512	573,691	1,557,203
New Brunswick.....	89,814	11,566	101,380	44,907	5,783	50,690
Ontario.....	100,000	50,000	150,000	50,000	25,000	75,000
Manitoba.....	33,600	67,200	100,800	16,800	33,600	50,400
Saskatchewan.....	13,126,880	11,004,000	24,130,880	6,563,440	5,502,000	12,065,440
Alberta.....	34,437,740	13,436,560	47,874,300	17,218,870	6,718,280	23,937,150
British Columbia.....	11,795,480	7,034,556	18,830,036	5,897,740	3,517,278	9,415,018
Yukon.....	434,560	1,449,840	1,884,400	217,280	724,920	942,200
Northwest Territories.....	140,000	2,489,760	2,629,760	70,000	1,244,880	1,314,880
CANADA TOTAL.....	62,125,098	36,690,864	98,815,962	31,062,549	18,345,432	49,407,981

TABLE 2.—RESERVES BY RANK AND BY PROVINCES

PART I.—PROBABLE COAL
(Thousands of net tons)

Province	Low Vol tile Bituminous		Medium Volatile Bituminous		High Volatile Bituminous		Sub-bituminous		Lignite		Total	
	Mineable	Recoverable	Mineable	Recoverable	Mineable	Recoverable	Mineable	Recoverable	Mineable	Recoverable	Mineable	Recoverable
Nova Scotia.....	2,360	1,180	25,504	12,752	1,939,160	969,580					1,967,024	983,512
New Brunswick.....					89,814	44,907					89,814	44,907
Ontario.....									100,000	50,000	100,000	50,000
Manitoba.....									33,600	16,800	33,600	16,800
Saskatchewan.....									13,126,880	6,563,440	13,126,880	6,563,440
Alberta.....	8,797,600	4,398,800	11,854,080	5,927,040	7,540,940	3,770,470	6,245,120	3,122,560			34,437,740	17,218,870
British Columbia.....	966,000	483,000	10,337,748	5,168,874	278,932	139,466			212,800	106,400	11,795,480	5,897,740
Yukon.....			87,360	43,680	24,640	12,320			322,560	161,280	434,560	217,280
Northwest Territories.....					30,240	15,120			109,760	54,880	140,000	70,000
Total.....	9,765,960	4,882,980	22,304,692	11,152,346	9,903,726	4,951,863	6,245,120	3,122,560	13,905,600	6,952,800	62,125,098	31,062,549

PART II.—POSSIBLE COAL
(Thousands of net tons)

Province	Low Volatile Bituminous		Medium Volatile Bituminous		High Volatile Bituminous		Sub-bituminous		Lignite		Total	
	Mineable	Recoverable	Mineable	Recoverable	Mineable	Recoverable	Mineable	Recoverable	Mineable	Recoverable	Mineable	Recoverable
Nova Scotia.....	6,720	3,360	16,000	8,000	1,124,662	562,331					1,147,382	573,691
New Brunswick.....					11,566	5,783					11,566	5,783
Ontario.....									50,000	25,000	50,000	25,000
Manitoba.....									67,200	33,600	67,200	33,600
Saskatchewan.....									11,004,000	5,502,000	11,004,000	5,502,000
Alberta.....	4,334,400	2,167,200	3,315,200	1,657,600	3,473,120	1,736,560	2,310,480	1,155,240	3,360	1,680	13,436,560	6,718,280
British Columbia.....	1,066,800	533,400	4,551,680	2,275,840	630,956	315,478			785,120	392,560	7,034,556	3,517,278
Yukon.....			182,560	91,280	28,560	14,280			1,238,720	619,360	1,449,840	724,920
Northwest Territories.....					1,696,800	848,400			792,960	396,480	2,489,760	1,244,880
Total.....	5,407,920	2,703,960	8,065,440	4,032,720	6,965,664	3,482,832	2,310,480	1,155,240	13,941,360	6,970,680	36,690,864	18,345,432
GRAND TOTAL..	15,173,880	7,586,940	30,370,132	15,185,066	16,869,390	8,434,695	8,555,600	4,277,800	27,846,960	13,923,480	98,815,962	49,407,981

TABLE 3.—SUMMARY OF RESERVES OF NOVA SCOTIA BASED ON COAL SEAMS NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 4,000 FEET*

(Thousands of net tons)

District	Mineable		Recoverable	
	Probable	Possible (Additional)	Probable	Possible (Additional)
Sydney Coalfield.....	1,764,184	915,152	882,092	457,576
West Coast of Cape Breton Island.....	44,982	35,320	22,491	17,660
Richmond-Loch Lomond.....	10,080	10,080	5,040	5,040
Pictou County.....	63,994	50,230	31,997	25,115
Cumberland County.....	81,424	129,880	40,712	64,940
Colchester County**.....	2,360	6,720	1,180	3,360
NOVA SCOTIA TOTAL.....	1,967,024	1,147,382	983,512	573,691

* Estimate of Joggins coal field in Cumberland County includes some seams of minimum thickness of 2 feet.

** Coal classifies as Class II, Group 1 (low volatile bituminous) under A.S.T.M. standards.

TIA, BASED ON SEAMS NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH THAN 5 MILES FROM SHORE

of net tons)

able			Recoverable		A.S.T.M. Classification	Remarks
Possible (Additional)			Probable	Possible (Additional)		
Thick-ness used (feet)	Area (sq. miles)	Tonnage				
3	40.0	134,400	.....	67,200	II 3	Lower seam averages less than 1 foot. Reserve classified as possible as no development and quality unknown. Seam may extend over same area as Hub seam. This would add a further 33 sq. miles or 110,000,000 tons mineable coal. Open cut operations possible at Point Aconi.
3	14.0	47,040	7,056	23,520		Seam probably persists over greater area and in greater thickness than assumed in estimate as indicated on map.
3	29.0	97,440	58,800	48,720		
3	8.5	28,560	86,184	14,280		Believed to be one of the most important seams in the field. Under Sydney Harbour it splits, which condition persists west to Chapel Point and to at least 3 miles north-east of Cranberry Head as indicated by borings from Princess Colliery.
3	28.5	95,760	65,520	47,880		
.....	.....	.....	7,560	.....		One of the most important and extensively mined seams, consistent in thickness and quality over wide area. Western boundary of reserve determined by Florence Colliery workings.
.....	.....	.....	152,880	.....	
.....	.....	.....	62,160	.....	
.....	.....	.....	56,000	.....	
3	22.5	75,600	14,448	37,800		Seam seldom 4-foot thick. Limited areas only included in estimate due to general thinness of seam and lack of information of behaviour of seam in submarine areas.
3	13.0	43,680	2,688	21,840		
3	6.2	20,832	4,032	10,416		Seam persists throughout the field, but thin in western area. Highly possible can be mined submarine, but land areas only included as <i>probable</i> reserves. Submarine extension taken as 3 miles from outcrop with variations according to special factors.
3	13.5	45,360	14,448	22,680		
3	14.5	48,720	5,880	24,360		
3	8.5	28,560	13,860	14,280		Most important and extensively mined seam in field. Most valuable reserve of easily accessible coking coal occurs in Lingan district. Seam thins west of New Waterford area and is very thin and dirty in Sydney mines area.
5	6.5	36,400	85,540	18,200		
.....	.....	.....	4,200	.....		Seam is lower branch of Phalen seam. May not extend east of Sydney Harbour. Apart from New Campbellton area seam is of insufficient thickness to be mineable.
.....	.....	.....	1,744	.....	
.....	.....	.....	1,512	.....	
.....	.....	.....	6,720	.....		Lowest seam worked in submarine area. Seam thins seaward. Submarine reserves considered small. Good quality coal with low sulphur content and relatively high fusion point of ash.
.....	.....	.....	18,592	.....	
3	19.8	66,640	16,352	33,320		Seam in mineable thickness extends over limited area only. New Colliery recently opened. Reserve largely shown as possible reserve as the seam is thin, dirty or splits. No submarine extension is included.
3	12.0	40,320	.....	20,160		
3	11.5	38,640	22,400	19,320		Inability to mine this seam in conjunction with seams above limits its potential development; quality of coal is mediocre.
4	15.0	67,200	18,816	33,600		Small operations at Hiawatha and Broughton Mines. Seam thins and deteriorates westward.
.....	.....	915,152	882,092	457,576		

TABLE 5.—RESERVES OF CAPE BRETON ISLAND, NOVA SCOTIA, OTHER THAN SYDNEY COALFIELD, BASED ON SEAMS NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 4,000 FEET, OR NOT MORE THAN 3 MILES FROM SHORE

(Thousands of net tons)

District and Area	Name of Seam	Coal Seam Thickness (feet)		Mineable						Recoverable		A.S.T.M. Classification
		Range	Av.	Probable			Possible (Additional)			Probable	Possible (Additional)	
				Thick-ness used (feet)	Area (sq. miles)	Tonnage	Thick-ness used (feet)	Area (sq. miles)	Tonnage			
Port Hood.....	Six Foot.....	5-7	6	3.0	6.5	21,840	3	3.5	11,760	10,920	5,880	II 5
Mabou.....	Seven Foot.....	5-7	6	5.0	0.1	560	5	0.3	1,680	280	840	II 5
	Eight Foot.....	6-8	7	6.0	0.1	672	6	0.3	2,016	336	1,008	
	Fifteen Foot.....		10	10.0	0.3	3,360	10	0.5	5,600	1,680	2,800	
	Five Foot.....		5	5.0	0.4	2,240	5	0.41	2,280	1,120	1,140	
Inverness.....	Thirteen Foot.....	0-13	5	4.5	0.1	500				250		II 5
	Seven Foot.....			3.0	0.03	100				50		
	Forty-two Inch.....			3.0	0.15	500				250		
	Port Ban.....	0-7	5	5.0	0.62	3,460	3	1.0	3,360	1,730	1,680	
St. Rose-Chimney Corner— St. Rose.....	No. 2.....	3-8	6	4.0	0.5	2,130	4	0.3	1,344	1,065	672	II 5
	No. 5.....	6-8	7	7.0	0.8	6,704	7	0.5	3,920	3,352	1,960	
Chimney Corner....	No. 1.....											
	No. 2.....		4	3.0	0.4	1,304	3	0.5	1,680	652	840	
	No. 4.....											
	No. 5.....	6-8	7	3.0	0.48	1,612	3	0.5	1,680	806	840	
Total.....						44,982			35,320	22,491	17,660	
Richmond.....	Whiteside	3-11	5	3.0	1.0	3,360	3	1.0	3,360	1,680	1,680	II 3
	Seal Coal Bay			3.0	1.0	3,360	3	1.0	3,360	1,680	1,680	
Loch Lomond.....	Salmon River.....	0-4	3	3.0	1.0	3,360	3	1.0	3,360	1,680	1,680	II 3
Total.....						10,080			10,080	5,040	5,040	
GRAND TOTAL.....						55,062			45,400	27,531	22,700	

TABLE 6.—RESERVES OF PICTOU COALFIELD, PICTOU COUNTY, NOVA SCOTIA, BASED ON SEAMS NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 4,000 FEET
(Thousands of net tons)

Area	Name of Seam	Strata Thickness (feet) and Range	Coal Seam Thickness (feet)		Mineable						Recoverable		A.S.T.M. Classification
			Range	Av.	Probable			Possible (Additional)			Probable	Possible (Additional)	
					Thickness used (feet)	Area (sq. miles)	Tonnage	Thickness used (feet)	Area (sq. miles)	Tonnage			
Thorburn.....	Captain.....	50	3.0	3.0	0.08	264	132	II 3
	Millrace.....			2.75	.....	.....	.....	.....	.....	.....	.....	.....
	McKay.....	56	.....	3.5	3.5	0.43	1,680	3	0.25	840	840	420
	Six Foot.....	521	.....	6.0	6.0	0.14	940	3	0.5	1,680	470	840
	McBean.....	600	3-8	5.0	6.5	1.4	10,000	3	0.5	1,680	5,000	840	
Total.....	12,884	4,200	6,442	2,100
Stellarton.....	Foord.....	200-100	2-35.0	30.0	12.0	0.85	10,000	2-10	2.0	11,200	5,000	5,600	II 3
	Cage.....		12-20.0	15.0	14.0	0.04	600	3-15	6.0	2,000	300	1,000	
	Third.....	150-85	14.0	12.0	7.5	0.18	1,512	3-4	3.1	1,150	756	575	
	McGregor or Fleming	190-90	15.0	15.0	6.0	0.43	2,670	3-15	0.5	5,600	1,335	2,800	
	Acadia No. 1.....	70-60												11.0	8.0	8.0	0.4	3,584	5	1.8	10,080	1,792	5,040
	Norah.....	167-110	7.0	5.0	5.0	0.15	800	.....	.....	.....	400	.....
	No. 5.....	65-25	21.0	5.0	5.0	0.13	640	.....	.....	.....	320	.....
	No. 6.....	70-60	3.0	3.0	.....	.....	2,000	.....	.....	.....	1,000	.....
	No. 8.....	75-50	5.0	5.0	.....	.....	2,000	.....	.....	.....	1,000	.....
	No. 9.....	47	5.0	5.0	.....	.....	1,800	.....	.....	.....	900	.....
Total.....	.....	.....	.....	.....	.....	25,606	.....	.....	30,030	12,803	15,015	.....
Westville.....	Acadia or Main..	10-170	16-18.0	17.0	13.1	0.9	13,408	5,000	6,704	2,500	II 2
	Scott.....		11-12.5	12.0	12.0	0.9	12,096	.....	.....	6,000	6,048	3,000
	Third.....	100-120	.....	6.0	.....	.....	6	0.3	2,000	.....	1,000	
	Fourth.....	100-130	.....	6.0	.....	.....	6	0.45	3,000	.....	1,500	
Total.....	.....	.....	.....	.....	.....	25,504	.....	.....	16,000	12,752	8,000	.....
GRAND TOTAL.....	.....	.....	.....	.....	.....	63,994	.....	.....	50,230	31,997	25,115	.....

TABLE 7.—RESERVES OF COALFIELDS OF CUMBERLAND COUNTY, NOVA SCOTIA, BASED ON SEAMS NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 4,000 FEET*

(Thousands of net tons)

District and Area	Name of Seam	Coal Seam Thickness (feet)		Mineable						Recoverable		A.S.T.M. Classification
				Probable			Possible (Additional)			Probable	Possible (Additional)	
				Thick-ness used (feet)	Area (Sq. miles)	Tonnage	Thick-ness used (feet)	Area (sq. miles)	Tonnage			
Range	Av.											
Springhill.....	No. 3.....	7.0-12.0	10.0	8.0	1.0	8,960	3.0	3.0	10,080	4,480	5,040	II 3
	No. 1.....	6.0-10.0	8.0	8.0	1.5	13,440	3.0	7.0	23,520	6,720	11,760	
	No. 2.....	7.0-17.0	10.0	9.0	0.5	5,040	3.0	8.5	28,560	2,520	14,280	
	No. 7.....	4.0- 7.0	5.0	5.0	0.4	2,240	3.0	4.0	13,440	1,120	6,720	
	No. 6.....	5.0- 7.0	6.0	6.0	0.7	4,704	3.0	4.0	13,440	2,352	6,720	
Total.....						34,384			89,040	17,192	44,520	
Joggins— Joggins.....	Joggins.....	4.0-6.0	5.0	5.0	2.0	11,200	3.0	2.0	6,000	5,600	3,000	II 3
	Queen.....	1.0-3.0	2.5									
	Kimberly.....	1.0-3.0	2.0									
	Forty Brine.....	2.5-3.5	2.7									
	Fundy or Hard scrabble.....	1.0-2.5	2.0									
River Hebert.....	Joggins (Victoria).....	4.0-6.0	5.0	5.0	0.89	5,000	5.0	0.89	5,000	2,500	2,500	II 3
	Queen.....	1.0-3.0	2.5	2.5	1.1	3,000	2.5	0.71	2,000	1,500	1,000	
	Kimberly.....	1.0-3.9	3.0	3.0	0.74	2,500	3.0	0.74	2,500	1,250	1,250	
	Forty Brine.....	0-3.5	2.5	2.5	0.89	2,500	2.5	0.54	1,500	1,250	750	
	Twin or Fundy.....	0-2.8	2.0	2.0	0.45	1,000	2.0	0.89	2,000	500	1,000	
Maccan.....	Lawson.....	0- 8.0	6.0	6.0	1.5	10,080	3.0	3.0	10,080	5,040	5,040	II 3
	Chignecto.....	0-13.0	5.0	3.0	3.5	11,760	3.0	3.5	11,760	5,880	5,880	
Total.....						47,040			40,840	23,520	20,420	
GRAND TOTAL.....						81,424			129,880	40,712	64,940	II 3

* Estimate of River Hebert and Maccan areas includes coal seams not less than 2 feet in thickness.

TABLE 8.—RESERVES OF NEW BRUNSWICK (MINTO FIELD), BASED ON SEAMS NOT LESS THAN 18 INCHES IN AVERAGE THICKNESS TO A MAXIMUM DEPTH OF 500 FEET

(Thousands of net tons)

District		Coal Seam Thickness (inches)			Area (acres)	Mineable		Recoverable		A.S.T.M. Classification
No.	Name	Range	Average	Used in Estimate		Probable	Possible (Additional)	Probable	Possible (Additional)	
1	Upper 18 Brook.....	16 - 30	18	18	690	1,811		906	II 3	
2	Lower 18 Brook.....		24	24	608	2,128	1,064			
3	Sheffield.....		21	21	446	1,366	683			
4	Lower Little River.....		21	21	78	239		119		
5	Upper Little River.....		18	18	378	992	496			
6	North Minto.....		24	24	761	2,664	1,332			
7	South Minto.....		21	21	2,411	7,384	3,692			
8	Midland.....		18	18	21,040	55,230	27,615			
9	Salmon River.....		18	18	73	192		96		
10	North Forks.....		18	18	400	1,550		525		
11	Chipman (West).....		18	18	5,917	15,532	7,766			
12	Chipman (East).....		18	18	3,152	8,274		4,137		
13	Coal Creek.....		18	18	1,721	4,518	2,259			
Total Minto Field.....					37,675	89,814	11,566	44,907	5,783	

TABLE 9.—RESERVES OF SASKATCHEWAN, BASED ON SEAMS NOT LESS
(Thousands)

District and Area	Name and Number of Seam	Strata Thickness (feet) and Range	Coal Seam Thickness (feet)		Depth (feet)		Area underlain by Coal Formation (sq. miles)	
			Range	Av.	Range	Av.	Total	Area used
SOUTHERN SASKATCHEWAN (Tertiary) SOURIS RIVER VALLEY.							10,000	
(1) Estevan Block ..							4,900	
						432		
	Frayne or No. 1 ..		4.0- 6.0	5	0- 70	35	20	
	Roche Percee or No. 2	52	4.0- 6.0	5	0-135	65	30	
	Estevan	20	0 -10.0	7	100-160	130	95	
	Taylorlton or No. 4.	25	9.0-15.0	10			150	
	No. 5	130	3.0- 4.0	2				
	No. 6	207	3.0- 6.0	4				
	No. 7	209	3.0- 5.0	4				
	No. 8	31	3.0- 6.0	4				
(2) Lampman Block							970	
	No. 6		2.0-10.0	4	150-300	250	250	
	No. 7	207	3.0- 5.0	4	100-450	200	300	
	No. 8	31	3.0- 5.0	4	80-500	200	400	
(3) Oxbow Block							1,800	
	No. 6		3.0- 5.0	4	50-400	300	360	
	No. 7	130	0 -10.0	4	80-450	350	350	
	No. 8	30	3.0- 5.0				350	
(4) Weyburn Block ..							1,500	
	No. 6		2.0- 8.0	4	50-300	150	250	
	No. 7	200	3.0- 5.0	4	95-450	300	600	
	No. 8	30	3.0- 5.0	4	100-500	350	600	
Total								
WOOD MOUNTAIN-WILLOWBUNCH							4,200	
(1) Radville Block ..							1,500	
	Big Muddy		5.0- 8.0	7	0-500	45	250	
	Keogh	270	5.0-10.0	7	0-300	100	400	
(2) Willowbunch Block							1,800	
	Willowbunch		5.0-15.0	7	0- 80	45	270	
	Harpree	200	5.0- 7.0	6	20-100	60	400	
	Gye or St. Victor ..	70	3.5- 7.5	5	20-160	90	300	
	Anchor	130	5.0-10.0	6	0-160	90	80	

THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 500 FEET
of net tons)

Mineable						Recoverable		A. S. T. M. Classifi- cation
Probable			Possible (Additional)			Probable	Possible (Addi- tional)	
Thick- ness used (feet)	Area (sq. miles)	Tonnage	Thick- ness used (feet)	Area (sq. miles)	Tonnage			
								IV
5	10.0	56,000	3	10	33,600	28,000	16,800	
5	15.0	84,000	3	15	50,400	42,000	25,200	
6	45.0	302,400	3	50	168,000	151,200	84,000	
10	80.0	896,000	3	70	235,200	448,000	117,600	
3	150.0	504,000	3	100	336,000	252,000	168,000	
3	150.0	504,000	3	150	504,000	252,000	252,000	
3	200.0	672,000	3	200	672,000	336,000	336,000	
3	200.0	672,000	3	160	537,600	336,000	268,800	
3	200.0	672,000	3	150	504,000	336,000	252,000	
3	200.0	672,000	3	150	504,000	336,000	252,000	
3	100.0	336,000	3	150	504,000	168,000	252,000	
3	250.0	840,000	3	350	1,176,000	420,000	588,000	
3	250.0	840,000	3	350	1,176,000	420,000	588,000	
.....	.....	7,050,400	.....	.....	6,400,800	3,525,200	3,200,400	
6	150.0	1,008,000	3	100	336,000	504,000	168,000	
6	200.0	1,344,000	3	200	672,000	672,000	336,000	
6	150.0	1,008,000	3	120	403,200	504,000	201,600	
5	100.0	560,000	3	300	1,008,000	280,000	504,000	
5	100.0	560,000	3	200	672,000	280,000	336,000	
5	50.0	280,000	3	30	100,800	140,000	50,400	

3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 500 FEET—*Concluded*
of net tons)

Mineable						Recoverable		A.S.T.M. Classifi- cation
Probable			Possible (Additional)			Probable	Possible (Addi- tional)	
Thick- ness used (feet)	Area (sq. miles)	Tonnage	Thick- ness used (feet)	Area (sq. miles)	Tonnage			
5	50.0	280,000	3	100	336,000	140,000	168,000	
3	100.0	336,000	3	100	336,000	168,000	168,000	
4	10.0	44,800	3	10	33,600	22,400	16,800	
		5,420,800			3,897,600	2,710,400	1,948,800	
6	50.0	336,000	3	30	100,800	168,000	50,400	
3	69.0	234,000	3	50	168,000	117,000	84,000	
3	10.0	33,600	3	10	33,600	16,800	16,800	
		603,600			302,400	301,800	151,200	
		13,074,800			10,600,800	6,537,400	5,300,400	
4	0.5	2,240	3	1	3,360	1,120	1,680	
7	0.5	3,920	5	1	5,600	1,960	2,800	
4	0.5	2,240	3	1	3,360	1,120	1,680	
8	0.5	4,480	5	1	5,600	2,240	2,800	
8	0.5	4,480	5	1	5,600	2,240	2,800	
4	0.5	2,240	3	1	3,360	1,120	1,680	
7	0.5	3,920	3	2	6,720	1,960	3,360	
8	0.5	4,480	3	2	6,720	2,240	3,360	
10	0.5	5,600	5	1	5,600	2,800	2,800	
10	0.5	5,600	5	1	5,600	2,800	2,800	
9	0.5	5,040	5	1	5,600	2,520	2,800	
4	0.5	2,240	3	1	3,360	1,120	1,680	
5	0.5	2,800	3	1	3,360	1,400	1,680	
5	0.5	2,800	3	1	3,360	1,400	1,680	
			3	100	336,000		168,000	
		52,080			403,200	26,040	201,600	
		13,126,880			11,004,000	6,563,440	5,502,000	IV

TABLE 10.—SUMMARY OF RESERVES OF ALBERTA

(Thousands of net tons)

District	Mineable		Recoverable	
	Probable	Possible (Additional)	Probable	Possible (Additional)
Inner Foothills Belt.....	20,325,760	7,323,680	10,162,880	3,661,840
Outer Foothills Belt.....	6,582,240	3,531,360	3,291,120	1,765,680
Plains (Belly River Formation).....	2,612,940	1,501,920	1,306,470	750,960
Plains (Edmonton Formation).....	4,916,800	1,079,600	2,458,400	539,800
Alberta Total.....	34,437,740	13,436,560	17,218,870	6,718,280

TABLE 11.—RESERVES OF INNER FOOTHILLS BELT, ALBERTA, BASED ON SEAMS

(Thousands)

District and Area	Coal-bearing Formation	Area underlain by Coal Formation (sq. miles)		Coal Seams		
		Total	Area used	No.	Aggregate Thickness (feet)	Thickness used (feet)
Crowsnest—						
Coleman.....	Kootenay.....	25	25	4	30.0	30
Mutz.....	".....	17	17	3	27.0	27
Blairmore.....	".....	22	19	3	27.0	27
East Flank Bluff-Turtle Mt.....	".....	11	11	3	25.0	25
Bluff-Mt. N. Extension.....	".....	4	4	3	25.0	2
Belleveu-Lille.....	".....	11	11	3	25.0	25
Hillcrest Basin.....	".....	9	9	3	25.0	25
Belleveu-Burmis and Ext.....	".....	15	15	3	15.0	15
Beaver Mines.....	".....	33	33	3	14.0	14
Beaver Mines N. Extension.....	".....	6	6	3	14.0	14
North Kootenay Pass.....	".....	11	11	3	15.0	15
Canon Creek.....	".....	4	4	3	25.0	20
Sentinel.....	Belly River.....	4	3	1	7.5	5
Total.....						
Oldman—						
West Oldman River.....	Kootenay.....	23	23	3	30.0	30
Pasque Mt. West Flank.....	".....	9	9	3	30.0	30
Pasque Mt. Basin.....	".....	11	11	3	25.0	25
Livingstone River Basin.....	".....	31	31	3	25.0	25
Intervening Anticline.....	".....	11	11	3	25.0	25
Mt. Livingstone N. Basin.....	".....	11	11	3	20.0	20
Mt. Livingstone S. Basin.....	".....	18	18	3	20.0	20
Total.....						
Highwood—						
Cataract River West.....	Kootenay.....	8	8	5	60.0	50
Storm-Mist Creeks.....	".....	10	10	5	60.0	50
Upper Highwood.....	".....	12	12	8	80.0	60
Sheep Creek Basin.....	".....	9	9	12	120.0	70
Cat Creek-Salter Creek.....	".....	13	13	8	100.0	60
Lower Cat Creek.....	".....	4	4	8	100.0	60
Trap Creek West.....	".....	12	12	4	30.0	30
Trap Creek Centre.....	".....	7	7	4	30.0	30
Trap Creek East.....	".....	11	11	4	30.0	30
Missing Link Mt. Basin.....	".....	45	45	3	20.0	15
Wolf-Sheep Creek.....	Edmonton.....	6	6	1	3.0	3
Total.....						
Cascade—						
Upper Kananaskis River.....	Kootenay.....	7	5	12	80.0	60
Ribbon Creek-Wind Mt.....	".....	14	12	8	80.0	70
Canmore.....	".....	12	9	16	116.0	70
Canmore-Anthracite.....	".....	8	5	6	60.0	60
Lower Cascade River.....	".....	9	7	7	60.0	60
Upper Cascade River.....	".....	5	4	4	30.0	30
Moose Mountain.....	".....	30	20	1	6.8	3
Bragg Creek.....	".....	20	10	1	3.0	3
Total.....						
Panther—						
Vermillion Range Basins.....	Kootenay.....	35	20	4	20.0	15
Central Basin.....	".....	11	8	3	15.0	10
Costigan Basin.....	".....	15	12	3	15.0	10
Total.....						

NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 2,500 FEET

of net tons)

Mineable						Recoverable		A.S.T.M. Classification
Probable			Possible (Additional)			Probable	Possible (Additional)	
Thick-ness used (feet)	Area (sq. miles)	Tonnage	Thick-ness used (feet)	Area (sq. miles)	Tonnage			
30	22	739,200	30	3	100,800	369,600	50,400	II 2
27	15	453,600	27	2	60,480	226,800	30,240	II 2
27	14	423,360	27	5	151,200	211,680	75,600	II 2
25	10	280,000	25	1	28,000	140,000	14,000	II 2
25	2	56,000	25	2	56,000	28,000	28,000	II 2
25	10	280,000	25	1	28,000	140,000	14,000	II 2
25	6	168,000	25	3	84,000	84,000	42,000	II 2
15	10	168,000	15	5	84,000	84,000	42,000	II 2
14	25	392,000	14	8	125,440	196,000	62,720	II 2
14	4	62,720	14	2	31,360	31,360	15,680	II 2
15	5	84,000	10	6	67,200	42,000	33,600	II 2
20	2	44,800	20	2	44,800	22,400	22,400	II 2
5	1	5,600	5	2	11,200	2,800	5,600	II 3
		3,157,280			872,480	1,578,640	436,240	
30	20	672,000	30	3	100,800	336,000	50,400	II 2
30	8	268,800	30	1	33,600	134,400	16,800	II 2
25	10	280,000	25	1	28,000	140,000	14,000	II 2
25	26	728,000	25	5	140,000	364,000	70,000	II 2
25	10	280,000	25	1	28,000	140,000	14,000	II 2
20	10	224,000	20	1	22,400	112,000	11,200	II 2
20	16	358,400	20	2	44,800	179,200	22,400	II 2
		2,811,200			397,600	1,405,600	198,800	
50	5	280,000	50	3	168,000	140,000	84,000	II 1
50	3	168,000	50	7	392,000	84,000	196,000	II 1
60	9	604,800	60	3	201,600	302,400	100,800	II 1
70	7	548,800	70	2	156,800	274,400	78,400	II 1
60	11	739,200	60	2	134,400	369,600	67,200	II 1
60	3	201,600	60	1	67,200	100,800	33,600	II 1
30	10	336,000	30	2	67,200	168,000	33,600	II 2
30	6	201,600	30	1	33,600	100,800	16,800	II 2
30	5	168,000	30	6	201,600	84,000	100,800	II 2
15	30	504,000	15	15	252,000	252,000	126,000	II 2
3	3	10,080	3	3	10,080	5,040	5,040	II 3
		3,762,080			1,684,480	1,881,040	842,240	
60	4	268,800	60	1	67,200	134,400	33,600	II 1, I 2, I 3
70	10	784,000	70	2	156,800	392,000	78,400	II 1
70	6	470,400	30	3	100,800	235,200	50,400	II 1
60	4	268,800	60	1	67,200	134,400	33,600	II 1
60	5	336,000	60	2	134,400	168,000	67,200	II 1
30	3	100,800	30	1	33,600	50,400	16,800	II 1
			3	20	67,200		33,600	II 2
			3	10	33,600		16,800	II 2
		2,228,800			660,800	1,114,400	330,400	
15	15	252,000	15	5	84,000	126,000	42,000	II 1 and II 2
10	6	67,200	10	2	22,400	33,600	11,200	II 2
10	10	112,000	10	2	22,400	56,000	11,200	II 1
		431,200			128,800	215,600	64,400	

TABLE 11.—RESERVES OF INNER FOOTHILLS BELT, ALBERTA, BASED ON SEAMS

—Con

(Thousands)

District and Area	Coal-bearing Formation	Area underlain by Coal Formation (sq. miles)		Coal Seams		
		Total	Area used	No.	Aggregate Thickness (feet)	Thickness used (feet)
Clearwater—						
Cripple Creek Sheet.....	Luscar.....	20	20	3	15.0	10
Hummingbird Creek Basins.....	Kootenay.....	15	12	2	7.0	6
Upper Clearwater.....	".....	20	10	2	7.0	7
Scalp Creek Basin.....	".....	3	1	2	10.0	5
Total.....						
Nordeg—						
Alexo.....	Luscar.....	45	45	3	20.0	10
Brazeau.....	".....	35	35	2	19.0	15
Bighorn.....	".....	24	14	8	60.0	50
George Creek.....	".....	12	12	8	70.0	60
Wapaibi Creek.....	".....	2	2	2	19.0	10
Wawa Creek.....	".....	5	5	2	19.0	10
Total.....						
Mountain Park—						
George Creek and Ext.....	Luscar.....	10	10	8	50.0	30
Grave Flats.....	".....	15	10	3	30.0	20
Mountain Park.....	".....	18	18	7	77.0	70
Cadomin-Luscar and Ext.....	".....	30	30	3	35.0	35
Medicine Lake.....	".....	7	5	5	50.0	40
Total.....						
Brule—						
Athabaska River South.....	Luscar.....	8	7	4	25.0	20
Brule and North Ext.....	".....	33	22	4	25.0	25
Pocahontas-Moose Creek.....	".....	16	8	3	27.0	25
Wildhay River-Thoreau Ck.....	".....	12	8	3	54.0	50
Total.....						
Smoky River—						
Thoreau Creek North Ext.....	Luscar.....	26	26	3	54.0	30
Upper Sheep-Smoky River.....	".....	30	30	3	30.0	15
Old Smoky River Reserve.....	".....	45	45	5	35.0	35
Muskeg-Wildhay River.....	".....	20	20	3	25.0	20
Total.....						
GRAND TOTAL.....						

NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 2,500 FEET

tinued

of net tons)

Mineable						Recoverable		A.S.T.M. Classifi- cation
Probable			Possible (Additional)			Probable	Possible (Addi- tional)	
Thick- ness used (feet)	Area (sq. miles)	Tonnage	Thick- ness used (feet)	Area (sq. miles)	Tonnage			
10	15	168,000	10	5	56,000	84,000	28,000	II 2
3	5	16,800	3	7	23,520	8,400	11,760	II 2
7	5	39,200	7	5	39,200	19,600	19,600	II 2
.....	.....	.....	5	1	5,600	.....	2,800	II 1 and II 2
.....	.....	224,000	.....	.....	124,320	112,000	62,160	
10	25	280,000	10	20	224,000	140,000	112,000	II 1
15	20	336,000	15	15	252,000	168,000	126,000	II 1
50	10	560,000	50	4	224,000	280,000	112,000	II 2
60	10	672,000	60	2	134,400	336,000	67,200	II 2
.....	.....	.....	10	2	22,400	.....	11,200	II 1
10	4	44,800	10	1	11,200	22,400	5,600	II 1
.....	.....	1,892,800	.....	.....	868,000	946,400	434,000	
30	9	302,400	30	1	33,600	151,200	16,800	II 2
20	8	179,200	20	2	44,800	89,600	22,400	II 2
70	15	1,176,000	70	3	235,200	588,000	117,600	II 2 and II 3
35	25	980,000	35	5	196,000	490,000	98,000	II 2
40	4	179,200	40	1	44,800	89,600	22,400	II 2
.....	.....	2,816,800	.....	.....	554,400	1,408,400	277,200	
20	4	89,600	20	3	67,200	44,800	33,600	II 1 and II 2
25	13	364,000	25	9	252,000	182,000	126,000	II 1 and II 2
25	3	84,000	25	5	140,000	42,000	70,000	II 1
50	4	224,000	50	4	224,000	112,000	112,000	II 1 and II 2
.....	.....	761,600	.....	.....	683,200	380,800	341,600	
30	20	672,000	30	6	201,600	336,000	100,800	II 1
15	5	84,000	15	25	420,000	42,000	210,000	II 1
35	35	1,372,000	35	10	392,000	686,000	196,000	II 1
20	5	112,000	20	15	356,000	56,000	168,000	II 1 and II 2
.....	.....	2,240,000	.....	.....	1,349,600	1,120,000	674,800	
.....	.....	20,325,760	.....	.....	7,323,680	10,162,880	3,661,840	

TABLE 12.—RESERVES OF OUTER FOOTHILLS BELT, ALBERTA, BASED ON SEAMS

(Thousands)

District	Coal-bearing Formation	Area underlain by Coal Formation (sq. miles)		Coal Seams		
		Total	Area used	No.	Aggregate Thickness (feet)	Thickness used (feet)
Pincher.....	St. Mary River..	80	40	1	3	3
	Belly River.....	300	20	2	10	10
Total.....						
Pekisko.....	St. Mary River..	70	40	3	12	10
	Belly River.....	250	70	2	13	10
	Kootenay.....	10	8	2	10	10
Total.....						
Morley.....	Edmonton.....	100	50	1	3	3
	Belly River.....	425	100	2	10	5
	Kootenay.....	30	30	2	10	6
Total.....						
Red Deer.....	Paleocene.....	550	10	1	5	3
	Edmonton.....	32	20	1	3	3
	Brazeau.....	200	50	1	3	3
	Luscar.....	126	60	3	16	10
Total.....						
Mountain House.....	Paleocene.....	Insufficient data	10	1	5	4
Total.....						
Saunders.....	Saunders.....	500	125	3	20	15
	Brazeau.....	85	10	1	3	3
	Luscar.....	14	3	3	10	5
Total.....						
Coalspur.....	Saunders.....	400	125	3	30	30
	Brazeau.....	350	10	1	5	3
Total.....						
Prairie Creek.....	Saunders.....	350	34	3	15	10
	Brazeau.....	150	10	1	3	3
Total.....						
Grand Total.....						

NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 2,500 FEET

of net tons)

Mineable						Recoverable		A.S.T.M. Classifi- cation
Probable			Possible (Additional)			Probable	Possible (Addi- tional)	
Thick- ness used (feet)	Area (sq. miles)	Tonnage	Thick- ness used (feet)	Area (sq. miles)	Tonnage			
3	20	67,200	3	20	67,200	33,600	33,600	II 4
10	8	89,600	10	12	134,400	44,800	67,200	II 3 and II 5
.....	.....	156,800	.....	.....	201,600	78,400	100,800	
10	20	224,000	10	20	224,000	112,000	112,000	II 4
10	40	448,000	10	30	336,000	224,000	168,000	II 4
10	5	56,000	10	3	33,600	28,000	16,800	II 4
.....	.....	728,000	.....	.....	593,600	364,000	296,800	
3	20	67,200	3	30	100,800	33,600	50,400	II 4
5	25	140,000	5	75	420,000	70,000	210,000	II 4
6	25	168,000	6	5	33,600	84,000	16,800	II 4
.....	.....	375,200	.....	.....	554,400	187,600	277,200	
.....	.....	.....	3	10	33,600	.....	16,800	II 5
3	5	16,800	3	15	50,400	8,400	25,200	II 4
3	20	67,200	3	30	100,800	33,600	50,400	II 4
10	30	336,000	10	30	336,000	168,000	168,000	II 2
.....	.....	420,000	.....	.....	520,800	210,000	260,400	
4	2	8,960	4	8	35,840	4,480	17,920	II 5
.....	.....	8,960	.....	.....	35,840	4,480	17,920	
15	75	1,260,000	15	50	840,000	630,000	420,000	II 5
3	3	10,080	3	7	23,520	5,040	11,760	II 4
5	1	5,600	5	2	11,200	2,800	5,600	II 2
.....	.....	1,275,680	.....	.....	874,720	637,840	437,360	
30	100	3,360,000	20	25	560,000	1,680,000	280,000	II 5
3	5	16,800	3	5	16,800	8,400	8,400	II 4
.....	.....	3,376,800	.....	.....	576,800	1,688,400	288,400	
10	20	224,000	10	14	156,800	112,000	78,400	II 5
3	5	16,800	3	5	16,800	8,400	8,400	II 4
.....	.....	240,800	.....	.....	173,600	120,400	86,800	
.....	.....	6,582,240	.....	.....	3,531,360	3,291,120	1,765,680	

TABLE 13.—RESERVES OF ALBERTA PLAINS (MAINLY BELLY RIVER SERIES) BASED
1,000
(Thousands)

District	Coal-bearing Formation	Area underlain by Coal Formation (sq. miles)		Coal Seams		
		Total	Area used	No.	Aggregate Thickness (feet)	Thickness used (feet)
Magrath.....	St. Mary River.. (Edmonton)	250	40	1	6	5.0
	Oldman.....	140	41	2	7	6.0
Total.....						
Lethbridge.....	St. Mary River.. (Edmonton)	75	5	1	3	3.0
	Oldman.....	270	180	2	7	4.0
Total.....						
Milk River.....	St. Mary River.. (Edmonton)	75	5	1	3	3.0
	Oldman.....	540	60	1	5	3.0
	Foremost.....	1,360	130	1	4	3.5
Total.....						
Pakowki.....	Ravenscrag.....	90	1	1	3	3.0
	Eastend..... (Edmonton)	185	10	2	10	6.0
	Oldman.....	850	15	1	6	6.0
	Foremost.....	400	30	1	7	5.0
Total.....						
Taber.....	Oldman.....	1,300	15	1	4	3.0
	Foremost.....	2,000	150	1	4	3.5
Total.....						
Redcliff.....	Oldman.....	1,300	12	1	Inferred	3.0
	Foremost.....	130	20	1	6	4.0
Total.....						
Brooks.....	Edmonton.....	79	11	1	Inferred	3.0
	Oldman.....	1,500	80	1	Inferred	4.0
	Foremost.....	50	60	1	5	4.0
Total.....						
Stevenville.....	Edmonton.....	40	5	1	Inferred	3.0
	Oldman.....	325	10	1	4	3.0
Total.....						

ON SEAMS NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF FEET

of net tons)

Mineable						Recoverable		A.S.T.M. Classification
Probable			Possible (Additional)			Probable	Possible (Additional)	
Thickness used (feet)	Area (sq. miles)	Tonnage	Thickness used (feet)	Area (sq. miles)	Tonnage			
5.0	35	196,000	3.0	5	16,800	98,000	8,400	II 5
6.0	36	241,900	4.0	5	22,400	120,950	11,200	II 3 and II 4
		437,900			39,200	218,950	19,600	
3.0	2	6,720	3.0	3	10,080	3,360	5,040	II 5
4.0	150	672,000	4.0	30	134,400	336,000	67,200	
		678,720			144,480	339,360	72,240	
3.0	1	3,360	3.0	4	13,440	1,680	6,720	III 1
3.0	10	33,600	3.0	50	168,000	16,800	84,000	III 1 and III 2
3.5	100	392,000	3.0	30	100,800	196,000	50,400	III 1 and III 2
		428,960			282,240	214,480	141,120	
6.0	7	47,040	3.0	1	3,360	1,680		IV
			6.0	3	20,160	23,520	10,080	III 3
6.0	10	67,200	3.0	5	16,800	33,600	8,400	III 3
5.0	25	140,000	3.0	5	16,800	70,000	8,400	III 3
		254,240			57,120	127,120	28,560	
3.0	5	16,800	3.0	10	33,600	8,400	16,800	III 1 and III 2
3.5	100	392,000	3.5	50	196,000	196,000	98,000	III 1 and III 2
		408,800			229,600	204,400	114,800	
3.0	2	6,720	3.0	10	33,600	3,360	16,800	III 3
4.0	10	44,800	4.0	10	44,800	22,400	22,400	III 3
		51,520			78,400	25,760	39,200	
3.0	1	3,360	3.0	10	33,600	1,680	16,800	III 2
4.0	30	134,400	4.0	50	224,000	67,200	112,000	III 2
4.0	10	44,800	3.0	50	168,000	22,400	84,000	III 2
		182,560			425,600	91,280	212,800	
3.0	1	3,360	3.0	4	13,440	1,680	6,720	III 2 and III 3
3.0	4	13,440	3.0	6	20,160	6,720	10,080	III 2 and III 3
		16,800			33,600	8,400	16,800	

TABLE 13.—RESERVES OF ALBERTA PLAINS (MAINLY BELLY RIVER SERIES) BASED
1,000 FEET

(Thousands)

District	Coal-bearing Formation	Area underlain by Coal Formation (sq. miles)		Coal Seams		
		Total	Area used	No.	Aggregate Thickness (feet)	Thickness used (feet)
Empress.....	Oldman.....	1,700	5	1	Inferred	3.0
	Foremost.....	30	10	1	3	3.0
Total.....						
Wainwright.....	Oldman.....	925	3	1	3	3.0
	Ribstone Creek (Foremost)	30	5	1	Inferred	3.0
Total.....						
Pakan.....	Oldman.....	1,200	5	1	3	3.0
	Ribstone Creek (Foremost)	1,000	5	1	Inferred	3.0
Total.....						
Westlock.....	Edmonton.....	360	10	1	6	5.0
	Oldman.....	1,300	10	1	5	3.0
Total.....						
Rochester.....	Oldman.....	540	5	1	Inferred	3.0
	Ribstone Creek (Foremost)	470	5	1	3	3.0
Total.....						
Slave.....	Edmonton.....	360	3	1	Inferred	3.0
	Oldman.....	900	5	1	4	3.0
Total.....						
High Prairie.....	Edmonton.....	900	5	1	Inferred	3.0
	Oldman.....	1,600	5	1	4	4.0
Total.....						
Sexsmith.....	Edmonton.....	260	4	1	3	3.0
	Oldman.....	1,600	5	1	3	3.0
Total.....						
Valhalla.....	Edmonton.....	325	5	1	Inferred	3.0
	Oldman.....	1,340	10	1	3	3.0
Total.....						
GRAND TOTAL.....						

ON SEAMS NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF

—Concluded

of net tons)

Mineable						Recoverable		A.S.T.M. Classifi- cation
Probable			Possible (Additional)			Probable	Possible (Addi- tional)	
Thick- ness used (feet)	Area (sq. miles)	Tonnage	Thick- ness used (feet)	Area (sq. miles)	Tonnage			
3.0	1	3,360	3.0	4	13,440	1,680	6,720	III 3
3.0	5	16,800	3.0	5	16,800	8,400	8,400	III 3
		20,160			30,240	10,080	15,120	
3.0	1	3,360	3.0	2	6,720	1,680	3,360	III 3
3.0	1	3,360	3.0	4	13,440	1,680	6,720	III 3
		6,720			20,160	3,360	10,080	
3.0	2	6,720	3.0	3	10,080	3,360	5,040	III 3
3.0	2	6,720	3.0	3	10,080	3,360	5,040	III 3
		13,440			20,160	6,720	10,080	
5.0	3	16,800	3.0	7	23,520	8,400	11,760	III 3
3.0	3	10,080	3.0	7	23,520	5,040	11,760	III 3
		26,880			47,040	13,440	23,520	
3.0	2	6,720	3.0	3	10,080	3,360	5,040	III 2 and III 3
3.0	2	6,720	3.0	3	10,080	3,360	5,040	III 2 and III 3
		13,440			20,160	6,720	10,080	
3.0	1	3,360	3.0	2	6,720	1,680	3,360	III 3
3.0	2	6,720	3.0	3	10,080	3,360	5,040	III 3
		10,080			16,800	5,040	8,400	
3.0	2	6,720	3.0	3	10,080	3,360	5,040	III 3
4.0	2	8,960	4.0	3	13,440	4,480	6,720	III 3
		15,680			23,520	7,840	11,760	
3.0	2	6,720	3.0	2	6,720	3,360	3,360	III 3
3.0	3	10,080	3.0	2	6,720	5,040	3,360	III 3
		16,800			13,440	8,400	6,720	
3.0	3	10,080	3.0	2	6,720	5,040	3,360	III 3 and III 2
3.0	6	20,160	3.0	4	13,440	10,080	6,720	III 3 and III 2
		30,240			20,160	15,120	10,080	
		2,612,940			1,501,920	1,306,470	750,960	

TABLE 14.—RESERVES OF ALBERTA PLAINS (EDMONTON FORMATION) BASED ON
1,000
(Thousands)

District	Formation	Area underlain by Coal Formation (sq. miles)		Name and No. of Seam	Coal Seam Thickness (feet)	
		Total	Area used		Range	Av.
Champion.....	Edmonton.....	950	25	Insufficient data.....	2.0- 4.0	3.0
Gleichen.....	Edmonton.....	1,350	20	Insufficient data.....	2.0- 4.5	3.5
Drumheller.....	Edmonton.....	400	15	No. 11 or Carbon....	1.0- 3.0	3.0
			35	No. 7.....	1.0- 6.5	4.0
			100.	No. 5 or Top.....	3.0- 5.5	4.5
			55	No. 2.....	2.0- 6.0	4.0
			80	No. 1 or Deep.....	4.0- 7.0	5.5
Total						
Sheerness.....	Edmonton.....	1,225	30	No. 1.....	4.0- 7.0	6.0
			23	No. 6.....	0.5- 4.0	3.0
Total						
Carbon.....	Edmonton.....	500	35	No. 11 or Carbon....	2.0- 5.0	4.0
			35	No. 14 or Ardley....	4.0- 6.0	5.0
Total						
Big Valley.....	Edmonton.....	360	15	No. 12 or Thompson.	4.0- 6.0	5.5
			15	No. 11 or Carbon....	2.0- 4.0	3.0
Total						
Castor.....	Edmonton.....	2,550	54	Main.....	3.0-10.0	6.0
			14	Lower.....	3.0- 8.0	5.0
Total						

COAL SEAMS NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF FEET

of net tons)

Mineable						Recoverable		A.S.T.M Classifi- cation
Probable			Possible (Additional)			Probable	Possible (Addi- tional)	
Thick- ness used (feet)	Area (sq. miles)	Tonnage	Thick- ness used (feet)	Area (sq. miles)	Tonnage			
3.0	20	67,200	3.0	5	16,800	33,600	8,400	III 1 and III 2
3.5	15	58,800	3.0	5	16,800	29,400	8,400	III 2
3.0	10	33,600	3.0	5	16,800	16,800	8,400	III 2
3.5	25	98,000	3.5	10	39,200	49,000	19,600	
3.5	80	313,600	3.5	20	78,400	156,800	39,200	
4.0	40	179,200	4.0	15	67,200	89,600	33,600	
5.5	60	369,600	5.5	20	123,200	184,800	61,600	
.....	.....	994,000	.....	.....	324,800	497,000	162,400	
6.0	25	168,000	3.0	5	16,800	84,000	8,400	III 3
3.0	20	67,200	3.0	3	10,080	33,600	5,040	
.....	.....	235,200	.....	.....	26,880	117,600	13,440	
4.0	30	134,400	4.0	5	22,400	67,200	11,200	III 2 and III 1
5.0	30	168,000	5.0	5	28,000	84,000	14,000	
.....	.....	302,400	.....	.....	50,400	151,200	25,200	
5.0	10	56,000	5.0	5	28,000	28,000	14,000	III 2
3.0	10	33,600	3.0	5	16,800	16,800	8,400	
.....	.....	89,600	.....	.....	44,800	44,800	22,400	
5.0	50	280,000	3.0	4	13,400	140,000	6,700	III 3 and III 2
5.0	10	56,000	3.0	4	13,400	28,000	6,700	
.....	.....	336,000	.....	.....	26,800	168,000	13,400	

TABLE 14.—RESERVES OF ALBERTA PLAINS (EDMONTON FORMATION) BASED ON
1,000 FEET
(Thousands)

District	Formation	Area underlain by Coal Formation (sq. miles)		Name and No. of Seam	Coal Seam Thickness (feet)	
		Total	Area used		Range	Av.
Ardley.....	Edmonton.....	250	28	No. 14 or Ardley.....	5.0- 6.0	5.5
			28	Carbon.....	4.0- 6.0	5.0
Total.....						
Wetaskiwin.....	Edmonton.....	1,000	15	Insufficient data.....	4.0- 7.0	5.0
Camrose.....	Edmonton.....	825	17	Upper.....	4.0- 7.0	5.0
			8	Lower.....	No data	5.0
Total.....						
Tofield.....	Edmonton.....	350	25	Upper.....	5.0- 8.0	6.5
			25	Lower.....	4.0- 7.0	5.0
Total.....						
Edmonton.....	Edmonton.....	1,875	50	No. 9 or Big Island..	2.0- 5.0	3.0
			50	No. 7 or Weaver.....	No data	6.0
			35	No. 4 or Clover Bar..	4.0- 6.0	5.0
			31	No. 3 or Lower.....	1.0- 5.0	3.0
Total.....						
Pembina.....	Edmonton.....	1,750	55	Big Seam.....	4.0-25.0	20.0
			50	Lower.....	4.0- 7.0	5.0
Total.....						
Whitecourt.....	Edmonton.....	540	20	Insufficient data....	3.0- 6.0	5.0
Halcourt..... (South Extension)	Edmonton.....	940	75	Insufficient data.....	1.0- 4.0	3.5
GRAND TOTAL..						

COAL SEAMS NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF
 —Concluded
 of net tons)

Mineable						Recoverable		A.S.T.M. Classifi- cation
Probable			Possible (Additional)			Probable	Possible (Addi- tional)	
Thick- ness used (feet)	Area (sq. miles)	Tonnage	Thick- ness used (feet)	Area (sq. miles)	Tonnage			
5.0	25	140,000	3.0	3	10,080	70,000	5,040	III 2
5.0	25	140,000	3.0	3	10,080	70,000	5,040	
.....	.....	280,000	.....	.....	20,160	140,000	10,080	
5.0	10	56,000	5.0	5	28,000	28,000	14,000	III 2
5.0	15	84,000	3.0	2	6,720	42,000	3,360	III 3 and III 2
5.0	5	28,000	3.0	3	10,080	14,000	5,040	
.....	.....	112,000	.....	.....	16,800	56,000	8,400	
6.0	20	134,400	3.0	5	16,800	67,200	8,400	III 3
5.0	20	112,000	3.0	5	16,800	56,000	8,400	
.....	.....	246,400	.....	.....	33,600	123,200	16,800	
3.0	40	134,400	3.0	10	33,600	67,200	16,800	III 2 and III 3
5.0	40	224,000	5.0	10	56,000	112,000	28,000	
5.0	30	168,000	5.0	5	28,000	84,000	14,000	
3.0	30	100,800	3.0	1	3,360	50,400	1,680	
.....	.....	627,200	.....	.....	120,960	313,600	60,480	
20.0	45	1,008,000	20.0	10	224,000	504,000	112,000	III 2
5.0	45	252,000	5.0	5	28,000	126,000	14,000	
.....	.....	1,260,000	.....	.....	252,000	630,000	126,000	
5.0	15	84,000	3.0	5	16,800	42,000	8,400	III 2
3.0	50	168,000	3.0	25	84,000	84,000	42,000	II 5 and III 2
.....	.....	4,916,800	.....	.....	1,079,600	2,458,400	539,800	

TABLE 15.—SUMMARY OF RESERVES OF BRITISH COLUMBIA

(Thousands of net tons)

District	Mineable		Recoverable	
	Probable	Possible (Additional)	Probable	Possible (Additional)
Southeastern British Columbia.....	10,334,388	4,541,600	5,167,194	2,270,800
Northeastern British Columbia.....	467,040	573,440	233,520	286,720
Central British Columbia.....	559,440	565,040	279,720	282,520
Northern British Columbia.....		138,880		69,440
South Central British Columbia.....	278,880	163,520	139,440	81,760
Vancouver Island, B.C.....	52,692	349,836	26,346	174,918
Graham Island, B.C.....	103,040	702,240	51,520	351,120
British Columbia Total.....	11,795,480	7,034,556	5,897,740	3,517,278

TABLE 16.—RESERVES OF SOUTHEASTERN BRITISH COLUMBIA, BASED ON

(Thousands)

District and Area	Coal-bearing Formation	Area underlain by Coal Formation (sq. miles)		Coal Seams			Depth (feet) Range
		Total	Area used	No.	Aggregate Thickness (feet)	Thickness used (feet)	
Crow'snest Coal Areas—							
Fernie Basin.....	Kootenay.....	230					1-2,500
Michel Block.....	"	12	12.0	18	170	70	
Coal Creek.....	"	4	2.0	23	170	150	
North End.....	"	10	10.0	18	170	150	
Western rim.....	"	16	16.0	23	170	170	
Eastern rim.....	"	15	15.0	8	130	130	
Sub-total.....							
Corbin Basin.....	Kootenay.....	3	1.3	2	60	60	1-1,000
Taylor and Tent Mountains..	Kootenay.....	6	5.0	2	60	50	1-1,000
Total.....							
Flathead River.....	Kootenay.....	10	6.0	5	80	50	0-1,000
Upper Elk River—							
Alexander Creek and Forks..	Kootenay.....	4	2.0	12	80	80	1-2,500
Crown Mountain.....	"	4	3.0	8	65	60	
Kilmarnock (Lewis) R.....	"	40	25.0	10	80	60	
Greenhills.....	"	18	18.0	10	97	70	
Mt. Marpole to Kilmarnock R.	"	20	10.0	18	170	150	
Aldridge Creek North.....	"	15	10.0	10	150	75	
Sub-total.....							
GRAND TOTAL.....							

TABLE 17.—RESERVES OF NORTHEASTERN BRITISH COLUMBIA, BASED ON

(Thousands)

District and Area	Coal-bearing Formation	Area underlain by Coal Formation (sq. miles)		Coal Seams		
		Total	Area used	No.	Aggregate Thickness (feet)	Thickness used (feet)
Peace River Canyon—						
Gething-Johnson Creek and Ext.....	Gething Lower Cretaceous	8	8	8	28	20
Moosecall Lake North.....		6	6	4	15	10
Butler Ridge—						
Packwood North Extension.....	"	25	15	7	24	20
East Flank.....	"	20	15	4	15	10
Carbon River.....	"	10	10	5	15	10
Falls Creek.....	"	10	5	2	10	10
Hasler Creek-Willow Creek.....	"	18	7	2	25	12
Halfway-Sikanni Chief Rivers.....	"	10	5	1	5	5
Minaker River.....		Insufficient data as to thickness				
Total.....						

SEAMS NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 2,500 FEET
of net tons)

Mineable						Recoverable		A.S.T.M. Classifi- cation
Probable			Possible (Additional)			Probable	Possible (Addi- tional)	
Thickness used (feet)	Area (sq. miles)	Tonnage	Thickness used (feet)	Area (sq. miles)	Tonnage			
70	10.0	784,000	70	2	156,800	392,000	78,400	II 2
150	1.0	168,000	150	1	168,000	84,000	84,000	
150	8.0	1,344,000	150	2	336,000	672,000	168,000	
170	12.0	2,284,800	170	4	761,600	1,142,400	380,800	
130	12.0	1,747,200	130	3	436,800	873,600	218,400	
		6,328,000			1,859,200	3,164,000	929,600	
60	1.3	81,588				40,794		II 2
50	4.0	224,000	50	1	56,000	112,000	28,000	II 2
		6,633,588			1,915,200	3,316,794	957,600	
50	3.0	168,000	50	3	168,000	84,000	84,000	II 2
80	1.0	89,600	80	1	89,600	44,800	44,800	II 2
60	1.0	67,200	60	2	134,400	33,600	67,200	
60	15.0	1,008,000	60	10	672,000	504,000	336,000	
70	12.0	940,000	70	6	470,400	470,000	235,200	
150	5.0	840,000	150	5	840,000	420,000	420,000	
75	7.0	588,000	75	3	252,000	294,000	126,000	
		3,532,800			2,458,400	1,766,400	1,229,200	
		10,334,388			4,541,600	5,167,194	2,270,800	

SEAMS NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 2,500 FEET
of net tons)

Mineable						Recoverable		A.S.T.M. Classifi- cation
Probable			Possible (Additional)			Probable	Possible (Addi- tional)	
Thickness used (feet)	Area (sq. miles)	Tonnage	Thickness used (feet)	Area (sq. miles)	Tonnage			
20	6	134,400	20	2	44,800	67,200	22,400	II 1
10	3	33,600	10	3	33,600	16,800	16,800	
20	5	112,000	20	10	224,000	56,000	112,000	
10	5	56,000	10	10	112,000	28,000	56,000	
10	6	67,200	10	4	44,800	33,600	22,400	
10	3	33,600	10	2	22,400	16,800	11,200	
12	1	13,440	12	6	80,640	6,720	40,320	
5	3	16,800	5	2	11,200	8,400	5,600	
		467,040			573,440	233,520	286,720	

TABLE 18.—RESERVES OF CENTRAL BRITISH COLUMBIA, BASED ON SEAMS

(Thousands)

District and Area	Coal-bearing Formation	Area underlain by Coal Formation (sq. miles)		Coal Seams		
		Total	Area used	No.	Aggregate Thickness (feet)	Thickness used (feet)
Skeena River Drainage Basin—						
Telkwa.....	Skeena Series	6	2.7	3	25	20
Clark-Fork.....	Lower Cretaceous	3	3.0	3	15	15
Chisholm Lake.....	"	Insufficient data as to thickness and extent				
Kathlyn Lake.....	"	18	6.0	2	7	4
Zymoetz River.....	"	1	1.0	1	3	3
Kispiox.....	"	13	4.0	1	5	3
Groundhog.....	"	40	40.0	4	20	20
Coal Creek.....	"	3	3.0	4	19	10
Gold Stream.....	"	3	2.0	2	9	5
Seaton.....	"	4	1.0	1	4	3
Fraser River Drainage Basin—						
Bowron River.....	Tertiary.....	10	5.0	3	21	10
Fort George.....	"	Insufficient data as to thickness and extent				
Fraser Lake.....	"					
Nechako River.....	"					
Blackwater.....	"					
Quesnel.....	"					
Cottonwood.....	"					
Alexandria.....	"	Insufficient data as to thickness and extent				
Driftwood.....	"					
Coast Range Area—						
Kohasganko.....	Tertiary.....	Insufficient data as to thickness and extent				
Bella Coala.....	"					
Total.....						

TABLE 19.—RESERVES OF NORTHERN BRITISH COLUMBIA BASED ON SEAMS

(Thousands)

District and Area	Coal-bearing Formation	Area underlain by Coal Formation (sq. miles)		Coal Seams			Depth (feet) Range
		Total	Area used	No.	Aggregate Thickness (feet)	Thickness used (feet)	
Atlin District.....							
Tuya River.....	Lower Cretaceous	Insufficient data		3	100+	100	0-500
Taku River.....	"			1		4	
Inklin River.....	"			1		Float	
Skoko River.....	"			1		Float	
Graham Inlet.....	"			1		Float	
Liard River Drainage Basin—							
Coal River.....	Tertiary.....	Insufficient data		1	Unexplored	Insufficient data	
Hyland River.....	"			1			
Dease River.....	"			1			
Rapid River.....	"			1			
Total.....							

NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 2,500 FEET

of net tons)

Mineable						Recoverable		A.S.T.M. Classification
Probable			Possible (Additional)			Probable	Possible (Additional)	
Thickness used (feet)	Area (sq. miles)	Tonnage	Thickness used (feet)	Area (sq. miles)	Tonnage			
20	0.2	4,480	20	2.5	56,000	2,240	28,000	II 3
15	2.0	33,600	15	1.0	16,800	16,800	8,400	II 3
of seams.								
4	3.0	13,440	4	3.0	13,440	6,720	6,720	II 1 and I 1
3	0.5	1,680	3	0.5	1,680	840	840	II 1
3	1.0	3,360	3	3.0	10,080	1,680	5,040	II 2
20	20.0	448,000	20	20.0	448,000	224,000	224,000	II 1 and I 3
10	0.25	2,800	10	0.05	560	1,400	280	II 3
5	1.0	5,600	5	1.0	5,600	2,800	2,800	II 3
3	0.5	1,680	3	0.5	1,680	840	840	II 3
10	4.0	44,800	10	1.0	11,200	22,400	5,600	II 5
of seams.								
.....	.....	559,440	.....	.....	565,040	279,720	282,520	

NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 1,000 FEET

of net tons)

Mineable						Recoverable		A.S.T.M. Classification
Probable			Possible (Additional)			Probable	Possible (Additional)	
Thickness used (feet)	Area (sq. miles)	Tonnage	Thickness used (feet)	Area (sq. miles)	Tonnage			
.....	100	1.0	112,000	.....	56,000	II 5
.....	4	1.0	4,480	.....	2,240	II 5
.....	3	1.0	3,360	.....	1,680	II 5
.....	3	1.0	3,360	.....	1,680	II 5
.....	3	1.0	3,360	.....	1,680	II 5
.....	10	0.5	5,600	.....	2,800	IV
.....	3	1.0	3,360	.....	1,680	IV
.....	3	0.5	1,680	.....	840	IV
.....	3	0.5	1,680	.....	840	IV
.....	138,880	.....	69,440	

TABLE 20.—RESERVES OF SOUTH CENTRAL BRITISH COLUMBIA BASED ON SEAMS
(Thousands)

District	Coal-bearing Formation	Area Underlain by Coal Formation (sq. miles)		Coal Seams		
		Total	Area used	No.	Aggregate Thickness (feet)	Thickness used (feet)
Princeton.....	Tertiary.....	6	6	4	20	20
Tulameen.....	"	5	5	3	25	15
Merritt-Nicola.....	"	25	10	4	10	8
Quilchena.....	"	3	2	5	15	10
White Lake.....	"					
Okanagan Falls.....	"					
Northern Okanagan Lake.....	"					
Hat Creek.....	"	3	1	3	456	100
Kamloops.....	"					
Chu Chua (North Thompson River)...	"					
Total.....						

TABLE 21.—RESERVES OF VANCOUVER ISLAND. BRITISH COLUMBIA, BASED ON
(Thousands)

District and Area	Name of Seam	Mine		
		Probable		
		Thickness used (feet)	Area (acres)	Tonnage
Nanaimo Coalfield—				
No. 10 Mine.....	Douglas.....	6.0	93	976
South of Granby Mine.....	"	6.0	50	526
Cedar.....	"			
Chase River.....	Newcastle.....			
Departure Bay.....	Wellington.....			
Little Ash Mine.....	Newcastle.....	5.0	4	34
White Rapids Mine.....	"	3.0	138	724
White Rapids Mine.....	"	2.5	11	48
Total.....				2,308
Comox Coalfield—				
Cumberland Area				
No. 5 Mine.....	No. 2.....	2.6	119	522
No. 8 Mine.....	No. 2.....	3.0	750	3,936
No. 8 Mine.....	No. 4.....	4.0	520	3,640
To dip of mine workings.....	No. 2.....	3.5	1,100	6,738
	No. 4.....	5.0	1,264	11,060
	All seams.....			
Total.....				25,896
Tsable River				
Upper Portion of Field.....	No. 4.....	2.6	241	1,092
	No. 3.....	3.4	336	1,940
	No. 2.....	6.2	485	5,262
Lower Portion of Field.....	No. 2.....	11.3	316	6,248
Remainder of Field.....	All Seams.....			
Total.....				14,542
Dove Creek and Brown's River				
Tsolum River.....	Seams not designated			
Quinsam.....		4.0	770	5,396
Campbell River.....		4.0	650	4,550
Total.....				9,946
Grand Total.....				52,692

NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 1,000 FEET
of net tons)

Mineable						Recoverable		A.S.T.M. Classification
Probable			Possible (Additional)			Probable	Possible (Additional)	
Thickness used (feet)	Area (sq. miles)	Tonnage	Thickness used (feet)	Area (sq. miles)	Tonnage			
20	4.0	89,600	20	2.0	44,800	44,800	22,400	IV, III 1 and III 2
15	3.0	50,400	15	2.0	33,600	25,200	16,800	
8	8.0	71,680	8	2.0	17,920	35,840	8,960	
10	1.0	11,200	10	1.0	11,200	5,600	5,600	
of seams.								II 4
100	0.5	56,000	100	0.5	56,000	28,000	28,000	IV
of seams.								
		278,880			163,520	139,440	81,760	

SEAMS NOT LESS THAN 2 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 2,000 FEET
of net tons)

Mineable			Recoverable		A.S.T.M. Classification
Thickness used (feet)	Area (acres)	Tonnage	Probable	Possible (Additional)	
6.0	150	1,574	488	787	II 3
5.0	6,592	57,680	263	28,840	
2.0	70	246		123	
2.0	177	620		310	
			17		
2.6	85	372	362		
			24	186	
		60,492	1,154	30,246	
					II 3
			261		
			1,968		
			1,820		
6.0	5,642	59,240	3,369		
			5,530	29,620	
		59,240	12,948	29,620	
					II 3
			546		
			970		
8.0	4,411	61,754	2,631		
			3,124	30,877	
		61,754	7,271	30,877	
3.5	1,200	7,350		3,675	II 3
4.0	11,520	80,640		40,320	
4.0	4,480	31,360	2,698	15,680	
4.0	7,000	49,000	2,275	24,500	
		168,350	4,973	84,175	
		349,836	26,346	174,918	

TABLE 22.—RESERVES OF GRAHAM ISLAND, BRITISH COLUMBIA, BASED ON SEAMS NOT LESS THAN 2 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 2,500 FEET

(Thousands of net tons)

District and Area	Coal-bearing Formation	Area underlain by Coal Formation (sq. miles)		Coal Seams			Depth (feet) Range	Mineable						Recoverable		A.S.T.M. Classification
		Total	Area used	No.	Range (feet)	Thick-ness used (feet)		Probable			Possible (Additional)			Prob-able	Possi-ble (Addi-tional)	
								Thick-ness used (feet)	Area (sq. miles)	Tonnage	Thick-ness used (feet)	Area (sq. miles)	Tonnage			
Southern Portion—	Upper Cretaceous Haida Formation						0-2000									II 1
Honna River Basin	“	1	1	2	2.5- 6	6		6	0.5	3,360	6	0.5	3,360	1,680	1,680	
Slatechuck Creek...	“	2	2	3	5.0- 6	10		10	1.0	11,200	10	1.0	11,200	5,600	5,600	
Camp Robertson...	“	3	3	1	4.0-10	5		5	2.0	11,200	5	1.0	5,600	5,600	2,800	
Camp Anthracite South.....	“	3	2	1	0- 9	4		4	1.0	4,480	4	1.0	4,480	2,240	2,240	
Yakoun River Basin Camp Wilson.....	“	10	2	1	4.0-18 (Av. 12)	5		5	1.0	5,600	5	1.0	5,600	2,800	2,800	
Northern Portion—																
Skonum Point Basin...	Tertiary.....	30	22	10	1.0-15	30		30	2.0	67,200	30	20.0	672,000	33,600	336,000	IV
Total.....										103,040			702,240	51,520	351,120	

TABLE 23.—RESERVES OF YUKON TERRITORY, BASED ON SEAMS NOT
(Thousands)

District and Area	Coal-bearing Formation	Area underlain by Coal Formation (sq. miles)		Coal Seams		
		Total	Area used	No.	Aggregate Thickness (feet)	Thickness used (feet)
Whitehorse district—						
Fish Lake.....	Lower Cretaceous	.....	5.0	3	22	15
Wheaton.....	"	2	1.0	3	10	8
Total.....						
Laberge District—						
Big Salmon.....	Lower Cretaceous	45	15.0	2	11	8
Claire Creek.....	"	4	2.0	1	3	3
Cassiar Bar.....	"	.....	} Insufficient data as to thickness			
Hootalinqua.....	"	.....			
Mason Landing.....	"	.....	} Insufficient data as to thickness			
Kynocks.....	"	8				
Total.....						
Carmacks District—						
Five Fingers.....	Lower Cretaceous	12	2.0	3	15	5
Tantalus.....	"	7	3.0	3	16	8
Tantalus Butte.....	"	3	1.5	3	25	9
Minto.....	"	.....	} Insufficient data as to thickness			
Mica Creek.....	"	.....			
Needle Rock (Pelly Canyon).....	Tertiary	.....	} Insufficient data as to thickness			
Total.....						
Aishihik District—						
Nordenskiold.....	Lower Cretaceous	.....	} Insufficient data as to thickness			
Kynocks.....	"	.....			
Peel River District—						
Peel River area.....	Lower Cretaceous	.....	Insufficient data as to thickness			

LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 1,000 FEET

of net tons)

Mineable						Recoverable		A.S.T.M. Classification
Probable			Possible (Additional)			Probable	Possible (Additional)	
Thickness used (feet)	Area (sq. miles)	Tonnage	Thickness used (feet)	Area (sq. miles)	Tonnage			
15	1.0	16,800	15	4.0	67,200	8,400	33,600	II 2
8	0.5	4,480	8	0.5	4,480	2,240	2,240	I 1 and II 2
		21,280			71,680	10,640	35,840	
8	5.0	44,800	8	10.0	89,600	22,400	44,800	II 2
3	1.0	3,360	3	1.0	3,360	1,680	1,680	II 2
and extent of seams.								
8	2.0	17,920	8	2.0	17,920	8,960	8,960	II 2
		66,080			110,880	33,040	55,440	
5	1.0	5,600	5	1.0	5,600	2,800	2,800	II 3
8	1.0	8,960	8	2.0	17,920	4,480	8,960	II 3
9	1.0	10,080	9	0.5	5,040	5,040	2,520	II 3
and extent of seams.								
		24,640			28,560	12,320	14,280	
and extent of seams.								
and extent of seams.								
and extent of seams.								

TABLE 23.—RESERVES OF YUKON TERRITORY, BASED ON SEAMS NOT LESS

(Thousands)

District and Area	Coal-bearing Formation	Area underlain by Coal Formation (sq. miles)		Coal Seams		
		Total	Area used	No.	Aggregate Thickness (feet)	Thickness used (feet)
Old Crow District—						
Old Crow Basin.....	Tertiary.....			}	Insufficient data as to thickness	
Porcupine R. Basin.....	Lower Cretaceous.....					
Arctic Coast District—						
Hershel.....	Lower Cretaceous.....			Insufficient data as to thickness		
Moose River.....	“	Extensive	4.0	1	8	8
Glenlyon District.....	Lower Cretaceous.....			Insufficient data as to thickness		
Dawson District—						
Rock Creek Basin.....	Tertiary.....	200	20.0	1	7	5
Ogilvie District—						
Indian River.....	Tertiary.....			Insufficient data as to thickness		
Kluane District—						
Duke Creek.....	Tertiary.....	10	8.0	3	9	5
Sheep Creek.....	“	4	2.0	1	4	4
Wade Creek.....	“		1.0	1	8	8
Total.....						
Dezadeash District—						
Squaw Creek.....	Tertiary.....			}	Insufficient data as to thickness	
Alesk River.....	“					
Kaskawulsh District—						
Jarvis River.....	Tertiary.....			}	Insufficient data as to thickness	
Alesk River Extension.....	“					
Watson Lake District—						
Liard River.....	Tertiary.....	5	2.0	1	3	3
Bonnet Plume District—						
Bonnet Plume River.....	Tertiary.....	425	60.0	2	38	20
GRAND TOTAL.....						

THAN 3 FEET IN THICKNESS TO A MAXIMUM DEPTH OF 1,000 FEET—*Concluded*
of net tons)

Mineable						Recoverable		A. S. T. M. Classifi- cation
Probable			Possible (Additional)			Probable	Possible (Addi- tional)	
Thickness used (feet)	Area (sq. miles)	Tonnage	Thickness used (feet)	Area (sq. miles)	Tonnage			
and extent of seams.								
and extent of seams.								
8	2.0	17,920	8	2.0	17,920	8,960	8,960	IV
and extent of seams.								
5	10.0	56,000	5	10.0	56,000	28,000	28,000	IV
and extent of seams.								
5	3.0	16,800	5	5.0	28,000	8,400	14,000	IV
4	1.0	4,480	4	1.0	4,480	2,240	2,240	
			8	1.0	8,960		4,480	
		21,280			41,440	10,640	20,720	
and extent of seams.								
and extent of seams.								
3	1.0	3,360	3	1.0	3,360	1,680	1,680	IV
20	10.0	224,000	20	50.0	1,120,000	112,000	560,000	IV
		434,560			1,449,840	217,280	724,920	

TABLE 24.—RESERVES OF NORTHWEST TERRITORIES, INCLUDING ARCTIC
DEPTH OF
(Thousands)

District and Area	Coal-Bearing Formation	Area underlain by Coal Formation (sq. miles)		Coal Seams		
		Total	Area used	No.	Aggregate Thickness (feet)	Thickness used (feet)
Mainland—						
Fort Norman.....	Tertiary.....		5	2	6.0	5
Great Bear Lake (Etacho).....	Lower Cretaceous.....		2	2	13.0	10
Nahanni River.....	“.....		3		Float	
Aklavik.....	“.....		2		3.0	3
Horton River 15 m. N.S.....	“.....		2		4.0	4
Langton Bay.....	“.....		1		Float	3
Total.....						
Arctic Islands—						
Banks Island.....	Carboniferous.....	4,000	100		3.0	3
Cape Crozier.....	“.....		1		Float	3
Mercy Bay.....	“.....		1		Float	3
Rodd Head.....	“.....		2		Thick Seam	6
Cape Hamilton 3½ m. E.....	“.....		2		3.0	3
Banks Island.....	Tertiary.....	22,000	100		3.0	3
Cape Kellett 80 m. N.E.....	“.....		1		3.0	3
Total.....						
Melville Island						
E. side of Kellett Str.....	Carboniferous.....	16,000	210			3
Cape Dundas.....	“.....		1		Float	3
Cape Dundas.....	“.....		1		Float	3
Winter Harbour.....	“.....		1		Thin Seams	3
Bridport Inlet.....	“.....		1		Float	3
Skene Bay.....	“.....		1		Float	3
Chevalier Bay.....	“.....		1		Float	3
Cape Grassy.....	“.....		1		Thick Seam	3
Bushman Cove.....	“.....		1		Float	3
Cape Clarendon.....	“.....		1		Float	3
Total.....						
Lougheed Island.....	Carboniferous.....	1,000	11		Seam and Float	3
Edmund Walker Island.....	Carboniferous.....		1		Float	3
Bathurst Island						
Graham Moore Bay.....	Carboniferous.....	7,680	100			3
Sargent Point.....	“.....		1		Float	3
De La Beche Bay.....	“.....		1		Float	3
Schonberg Point.....	“.....		1		Float	3
Scoresby Bay.....	“.....		1		Float	3
Green River.....	“.....		1		Float	3
Total.....						
Byam Martin Island.....	Carboniferous.....	350	5		Float	3

ISLANDS, BASED ON SEAMS NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM 1,000 FEET

of net tons)

Mineable						Recoverable		A.S.T.M. Classification
Probable			Possible (Additional)			Probable	Possible (Additional)	
Thickness used (feet)	Area (sq. miles)	Tonnage	Thickness used (feet)	Area (sq. miles)	Tonnage			
5	3	16,800	5	2	11,200	8,400	5,600	IV
10	1	11,200	10	1	11,200	5,600	5,600	IV
			3	3	10,080		5,040	II 5
3	1	3,360	3	1	3,360	1,680	1,680	II 5
4	1	4,480	4	1	4,480	2,240	2,240	IV
			3	1	3,360		1,680	IV
		35,840			43,680	17,920	21,840	
			3	100	336,000		168,000	II 5
			3	1	3,360		1,680	II 5
			3	1	3,360		1,680	II 5
6	1	6,720	6	1	6,720	3,360	3,360	II 5
3	1	3,360	3	1	3,360	1,680	1,680	II 5
			3	100	336,000		168,000	IV
			3	1	3,360		1,680	IV
		10,080			692,160	5,040	346,080	
			3	200	672,000		336,000	II 5
			3	1	3,360		1,680	
			3	1	3,360		1,680	
			3	1	3,360		1,680	
			3	1	3,360		1,680	
			3	1	3,360		1,680	
			3	1	3,360		1,680	
			3	1	3,360		1,680	
			3	1	3,360		1,680	
					702,240		351,120	
3	1	3,360	3	10	33,600	1,680	16,800	II 5
			3	1	3,360		1,680	II 5
			3	100	336,000		168,000	II 5
			3	1	3,360		1,680	
			3	1	3,360		1,680	
			3	1	3,360		1,680	
			3	1	3,360		1,680	
			3	1	3,360		1,680	
			3	1	3,360		1,680	
					356,160		178,080	
			3	5	16,800		8,400	II 5

ISLANDS, BASED ON SEAMS NOT LESS THAN 3 FEET IN THICKNESS TO A MAXIMUM FEET—*Concluded*

of net tons)

Mineable						Recoverable		A.S.T.M. Classification
Probable			Possible (Additional)			Probable	Possible (Additional)	
Thickness used (feet)	Area (sq. miles)	Tonnage	Thickness used (feet)	Area (sq. miles)	Tonnage			
			3	10	33,600		16,800	II 5
			3	1	3,360		1,680	II 5
			3	1	3,360		1,680	II 5
			3	25	84,000		42,000	II 5
			3	10	33,600		16,800	II 5
			3	1	3,360		1,680	
			3	1	3,360		1,680	
					40,320		20,160	
			3	10	33,600		16,800	II 5
			3	1	3,360		1,680	
					36,960		18,480	
			3	100	336,000		168,000	IV
			3	1	3,360		1,680	II 5
3	1	3,360	3	1	3,360	1,680	1,680	II 5
25	1	28,000	25	1	28,000	14,000	14,000	IV
			3	1	3,360		1,680	IV
" 6	1	6,720	6	1	6,720	3,360	3,360	IV
			3	1	3,360		1,680	IV
3	1	3,360	3	1	3,360	1,680	1,680	IV
			3	1	3,360		1,680	IV
25	1	28,000	25	1	28,000	14,000	14,000	IV
10	1	11,200	10	1	11,200	5,600	5,600	IV
		80,640			430,080	40,320	215,040	
3	1	3,360	3	1	3,360	1,680	1,680	II 5
3	1	3,360	3	1	3,360	1,680	1,680	
		6,720			6,720	3,360	3,360	
3	1	3,360	3	1	3,360	1,680	1,680	II 5
		140,000			2,489,760	70,000	1,244,880	

APPENDIX B

LIST OF PRINCIPAL CANADIAN PORTS IN THE ST. LAWRENCE AND GREAT LAKES AREA HAVING DOCKS RECEIVING COAL

	Approximate Storage Capacity		Tonnage Received by Water, April 1944 to March 1945 (See Note A)		Tonnage Received by Water, April 1945 to March 1946 (See Note A)		Vessels Handled (See Note B)	Principal Method of Distribution (See Note C)	
	Commercial Docks	Private Docks	Bituminous	Anthracite	Bituminous	Anthracite		Local	Outside
	Tons	Tons	Tons	Tons	Tons	Tons			
Lake Superior Area—									
Fort William.....	930,000	1,574,000	2,161,000	6,500	1,299,000	6,000	S. U. V. O. and Bulk	Rail.....	Rail
Port Arthur.....		3,000	16,000		33,000		S. U. V. O.....	Truck.....	
Red Rock.....		50,000			31,000		S. U. V. O.....	Truck.....	
Jack Fish.....		125,000	254,000		173,000		Bulk.....		Rail
Marathon.....		50,000			24,000		S. U. V. O.....	Truck.....	
Michipicoten Harbour.....	265,000		485,000		400,000		Bulk.....		Rail
Sault Ste. Marie.....	95,000	1,165,000	1,979,000	20,000	1,565,000	2,500	S. U. V. O. and Bulk	Truck and Rail	
Lake Huron Area—									
Little Current.....	500,000		724,000		517,000		Bulk.....		Rail
Britt.....	800,000		518,000		431,000		Bulk.....		Rail
Depot Harbour (Inactive in 1944 and 1945)	875,000						S. U. V. O.....		
Parry Sound.....	5,000		3,000		5,000		S. U. V. O.....	Truck.....	
Port McNicoll.....		15,000	21,000		15,000		S. U. V. O.....	Truck.....	
Midland.....	225,000		444,000		376,000	10,000	Bulk.....		Rail
Penetang.....					2,000		S. U. V. O.....	Truck.....	
Collingwood.....	5,000	4,000	2,000		6,000		S. U. V. O.....	Truck.....	
Meaford.....	18,000		3,000		3,000		S. U. V. O.....	Truck.....	
Owen Sound.....	14,000	15,000	29,000		23,000		S. U. V. O.....	Truck.....	
Southampton.....	5,000		1,500				S. U. V. O.....	Truck.....	
Kincardine.....	3,000		3,000		3,500		S. U. V. O.....	Truck.....	
Goderich.....	2,800	27,500	30,000		14,000		S. U. V. O.....	Truck.....	
Sarnia-Windsor Area—									
Point Edward.....	46,000		44,000		46,000		S. U. V. O.....	Truck.....	Rail
Sarnia.....	28,000	119,000	236,000		257,000	10,000	S. U. V. O.....	Truck.....	Rail
Wallaceburg.....	1,000	30,000	40,000		10,000		S. U. V. O.....	Truck.....	
Chatham.....	7,500		11,000		9,000		S. U. V. O.....	Truck.....	
Windsor.....	260,000	150,000	571,000		557,000		S. U. V. O.....	Truck.....	
Amherstburg.....	10,000	30,000	117,000		128,000		S. U. V. O.....	Truck.....	
Lasalle.....					3,000			Truck.....	

NOTE A.—While the tonnages shown for bituminous include only water-borne coal, the tonnages for anthracite include approximately 125,000 tons in 1944-45 and 85,000 tons in 1945-46 received at the docks by rail.

NOTE B.—S. U. V. O. indicates location of docks capable of handling self-unloading vessels only. Bulk indicates location of docks capable of handling bulk cargo freighters.

NOTE C.—In the case of coal for local consumption, "truck" includes where applicable, coal consumed at the adjoining plant of private docks.

LIST OF PRINCIPAL CANADIAN PORTS IN THE ST. LAWRENCE AND GREAT LAKES AREA HAVING DOCKS RECEIVING COAL

	Approximate Storage Capacity		Tonnage Received by Water, April 1944 to March 1945 (See Note A)		Tonnage Received by Water, April 1945 to March 1946 (See Note A)		Vessels Handled (See Note B)	Principal Method of Distribution (See Note C)	
	Commercial Docks	Private Docks	Bituminous	Anthracite	Bituminous	Anthracite		Local	Outside
	Tons	Tons	Tons	Tons	Tons	Tons			
Lake Erie Area—									
Kingsville.....	15,000		13,000		11,500		S.U.V.O.....	Truck.....	
Erieau.....	200,000		478,000		497,000		Bulk.....		Rail
Port Stanley.....	175,000		203,000		174,000		S.U.V.O.....	Truck.....	Rail
Port Burwell.....	175,000		112,000		145,000		S.U.V.O.....	Truck.....	Rail
Port Maitland.....	300,000		243,000		216,000		S.U.V.O.....		Rail
Port Colborne.....	190,000	15,000	241,000		209,000		S.U.V.O. and Bulk	Truck.....	Rail
Fort Erie.....	5,000		3,000				Bulk.....	Truck.....	
Welland.....	5,000	50,000	66,000		60,000		S.U.V.O.....	Truck.....	
Thorold.....	105,000	50,000	183,000		180,000		S.U.V.O.....	Truck.....	
Lake Ontario Area—									
Port Weller.....	35,000		47,000		47,000		S.U.V.O.....	Truck.....	
Hamilton.....	100,000	900,000	1,563,000		1,297,000	10,000	S.U.V.O. and Bulk	Truck.....	Truck
Toronto.....	2,605,000		1,695,000	87,000	1,531,000	76,000	S.U.V.O. and Bulk	Truck.....	
Oshawa.....	29,000		57,000		65,000		S.U.V.O.....	Truck.....	Truck
Port Hope.....	14,500	7,000	19,000		15,000		S.U.V.O.....	Truck.....	
Cobourg.....	11,000		10,000	700	9,000	60	S.U.V.O.....	Truck.....	
Trenton.....	80,000		32,000		36,000		S.U.V.O.....	Truck.....	Truck
Belleville.....	65,000		34,000		34,000		S.U.V.O.....	Truck.....	
Picton.....	12,000		19,000	2,000	11,000	1,000	S.U.V.O.....	Truck.....	
Napanee.....	20,000		20,000		17,000		Bulk.....	Truck.....	Truck
Kingston.....	72,000	10,000	83,000	27,000	67,000	27,000	S.U.V.O.....	Truck.....	
St. Lawrence Area—									
Gananogue.....	6,200		6,000	3,000	7,000	3,000	S.U.V.O.....	Truck.....	
Brockville.....	34,000		24,000	11,000	20,000	11,000	S.U.V.O.....	Truck.....	
Prescott.....	300,000	8,000	629,000	46,000	579,000	30,000	S.U.V.O.....	Truck.....	Rail
Cardinal.....	15,000	30,000	51,000	4,000	65,000	3,000	S.U.V.O.....	Truck.....	
Cornwall.....	25,000	60,000	64,000	2,000	81,000	2,000	S.U.V.O.....	Truck.....	
Montreal.....	2,230,000	670,000	1,770,000	84,000	1,880,000	68,000	Bulk.....	Truck.....	Rail
Beauharnois.....			20,000		22,000		Bulk.....	Truck.....	
Sorel.....	95,000		31,000		42,000		Bulk.....	Truck.....	

Three Rivers.....	375,000		313,000		340,000		Bulk.....	Truck.....	Rail
Levis.....	9,000	Inactive	3,000		2,500		Bulk.....	Truck.....	
Quebec City.....	201,000	80,000	289,000	53,000	254,000	48,000	Bulk.....	Truck.....	Rail
Port Alfred.....		164,000	183,000		5,000		Bulk.....	Truck.....	Rail
Chicoutimi.....	65,000		64,000	12,000	27,000	11,000	Bulk.....	Truck.....	
Baie Comeau.....			24,000		13,000		Bulk.....	Truck.....	
Clarke City.....		4,000	1,000		1,300		Bulk.....	Truck.....	

NOTE A.—While the tonnages shown for bituminous include only water-borne coal the tonnages for anthracite included approximately 125,000 tons in 1944-45 and 85,000 tons 1945-46 received at the docks by rail.

NOTE B.—S.U.V.O. indicates location of docks capable of handling self-unloading vessels only. Bulk indicates location of docks capable of handling bulk cargo freighters.

NOTE C.—In the case of coal for local consumption "truck" includes where applicable, coal consumed at the adjoining plant of private docks.

APPENDIX C

USE OF MAJOR ENERGY SOURCES: 1926-1945

(Trillions of B.t.u.)

Year	Water Power at Yearly Average Coal Equivalent ¹ Domestic	Coal ²			Petroleum Fuels ⁵			Natural Gas ⁶	Total ⁷ Sum of Foregoing Fuels		
		Domestic ³	Imports ⁴	Total ²	Domestic	Imports	Total ⁵	Domestic	Domestic	Imports	Total
1926.....	261	379	464	844	2	107	109	21	664	571	1,234
1927.....	280	394	501	895	3	123	126	23	701	624	1,324
1928.....	314	409	464	873	4	149	153	24	751	614	1,365
1929.....	337	405	500	906	7	178	185	31	780	678	1,458
1930.....	326	347	514	861	9	171	180	32	714	685	1,399
1931.....	295	288	357	645	9	161	171	28	620	518	1,138
1932.....	273	273	324	597	6	154	160	25	577	478	1,055
1933.....	279	280	302	581	7	154	161	25	591	455	1,046
1934.....	318	327	356	683	9	163	172	25	679	519	1,198
1935.....	341	327	327	654	9	173	182	27	703	500	1,204
1936.....	360	356	353	710	9	179	188	30	756	532	1,288
1937.....	401	375	390	764	18	189	207	35	828	579	1,407
1938.....	391	340	343	683	42	176	217	36	809	519	1,328
1939.....	415	370	399	769	47	186	233	38	870	585	1,455
1940.....	459	415	468	882	52	212	263	44	970	679	1,649
1941.....	542	427	546	972	61	237	297	47	1,076	782	1,858
1942.....	615	437	668	1,104	62	224	286	49	1,163	892	2,055
1943.....	666	396	754	1,150	60	231	291	48	1,170	985	2,155
1944.....	656	383	764	1,146	61	259	320	48	1,148	1,023	2,170
1945*.....	607	375	682	1,057	51	271	322	57	1,090	953	2,043

¹ Output of central electric stations generated by water, less exports, plus power generated and used by the manufacturing and mining industries. Primary power is calculated at the coal equivalent, based on the average efficiency of central electric stations in the United States as reported by the Edison Electric Institute. Because of increased efficiency in the utilization of coal this average decreased from the equivalent of 1.95 lbs. of coal per kilowatt hour in 1926 to the equivalent of 1.31 lbs. in 1945. Secondary power sold by central electric stations is calculated at its actual B.t.u. equivalent of 3,415 B.t.u. per kilowatt hour.

² Includes anthracite coal, bituminous coal, sub-bituminous coal, lignite coal and imported coke. The unit heat values employed are: anthracite, 27,200,000 B.t.u. per ton; bituminous, 26,200,000 B.t.u. per ton; sub-bituminous and lignite, 20,000,000 B.t.u. per ton; coke, 26,000,000 B.t.u. per ton.

³ Sum of sales by Canadian coal mines, colliery consumption, coal supplied to employees and coal used in making coke, etc., less tonnage bunkered and exported.

⁴ Imported for consumption. Deductions have been made to take account of foreign coal re-exported and bunkered.

⁵ The coal equivalent of the sum of gasoline, fuel and gas oils and kerosene estimated by the D.B.S. and converted to B.t.u. on the basis of 1 ton of coal equals 26,000,000 B.t.u. plus petroleum coke imports consumed as fuel calculated at the rate of 30,000,000 B.t.u. per ton.

⁶ Total production. The unit heat values employed are 1,075 B.t.u. per cubic foot.

⁷ Including water power calculated at the yearly average coal equivalent.

* Preliminary.

SOURCE: The Bank of Canada Statistical Summary, October-November, 1946.

APPENDIX D

STATISTICS OF COAL CONSUMPTION

In the tables that follow are presented estimates of annual coal consumption for the four regions into which Canada has been divided for purposes of the discussion of coal markets. The figures are for the years 1937 and 1939 to 1945 inclusive, and are classified by country of origin of the coal and to some extent by the purpose for which the coal was consumed. The estimates are of actual consumption and, therefore, are not directly comparable with figures based on coal available for consumption. Figures for coal consumption and for coal available for consumption differ by the extent to which coal stocks are increased or depleted. Since coal stocks in Canada may, under unusual conditions, vary from year-end to year-end by 3,000,000 tons or more, coal consumption in any one year may differ considerably from coal available for consumption in the same year.

To a very considerable extent the tables that follow are based on material which was collected by the Dominion Bureau of Statistics, principally for the office of the Coal Controller. The Royal Commission on Coal is much indebted to both these organizations for making that material available, but the responsibility for the use made of it rests entirely with the Commission. The Commission, therefore, emphasizes that the figures presented are estimates only and are known to be incomplete in some respects. This is particularly true for the years 1937 and 1939, for which much less actual consumption data are available. It is believed, however, that the figures are sufficiently accurate to be of assistance in analysing the Canadian coal market. For the benefit of any who wish to use them extensively, a few notes on the manner in which they have been prepared and some of the defects known to exist in them follow.

- (1) It is stressed again that the figures for 1937 and 1939 are much less reliable than those for the later years. During the later years returns were made to the Dominion Bureau of Statistics by retail dealers and by large consumers of coal for the use of the Coal Controller. In the years 1937 and 1939 similar source material was not available. The estimates for those two years are, therefore, based largely on figures of coal consumption as shown in Census of Industry reports and on returns made by the railroads, with the retail figures obtained by difference.
- (2) For all years except 1940 the figures are on a calendar year basis. The retail and industrial figures shown for 1940 are actually for the twelve months from April, 1940, to March, 1941, inclusive.
- (3) Under the heading of Retail Sales are included all sales of coal made at retail prices and also all direct sales of coal by collieries for domestic use, both to their own employees and to others. Most of the coal thus sold was undoubtedly used for domestic purposes, but there is included an unknown amount used by small commercial establishments and small off-siding industry.
- (4) During many of the years covered by the figures it was a practice in some areas to mix together in varying percentages American and Welsh blower anthracite and to report the mixture as Welsh anthracite. For this reason the figures tend to show rather more United Kingdom anthracite and less United States anthracite consumed than was in fact the case.
- (5) Table 3, in which are given more detailed figures of retail sales of coal and coke in Ontario and Quebec, is based, insofar as the years 1928 to 1932, inclusive, are concerned, on the publication "Fuels Distributed for Domestic Heating in Manitoba, Ontario and Quebec, 1928 to 1932", by the Dominion Fuel Board in co-operation with the Mines Branch, Department of Mines.

- (6) From April 1940 on, all industrial consumers known to be using more than 500 tons annually reported their coal consumption on a monthly basis to the Dominion Bureau of Statistics for the use of the Office of the Coal Controller, and it is on these reports that the industrial consumption estimates were based. It is estimated that these reports covered 94 per cent of total industrial consumption and the totals reported were inflated accordingly. To these totals were then added the figures of colliery consumption for power purposes and for making briquettes.
- (7) There is duplication involved in the treatment of briquettes. Coal used for briquette-making is included in industrial consumption, whereas briquettes sold retail are included in retail sales. Since the total production and most of the consumption of briquettes is on the Prairies, it is only for that area that this comment is relevant.
- (8) In most cases the export figures have been based on the External Trade Branch returns, although an adjustment has been made in the regional tables to show exports in the region of origin rather than in the region through whose ports the coal was actually exported.
- (9) Prior to 1942 there is little information available on coal deliveries to ships' bunkers, except insofar as the deliveries were direct from mines. The consumption estimates for bunkers for the earlier years are therefore based on very limited information.
- (10) It would appear that there is some consumption of coal which is overlooked in the tables that follow. The use of coal by commercial establishments, such as large apartment blocks and stores, is probably not included, except insofar as it was purchased at retail prices. Also, a considerable percentage of coal sold to the Department of Munitions and Supply on Armed Service contracts is probably not included. The magnitude of the error produced by these omissions can only be roughly estimated, but it is not believed to be sufficiently large to reduce seriously the value of these figures for any purposes to which they might reasonably be put.

APPENDIX D

TABLE 1.—CONSUMPTION OF COAL AND COKE IN THE MARITIMES, BY CALENDAR YEARS

(In thousands of net tons)

	1937	1939	1940	1941	1942	1943	1944	1945
Retail—								
Anthracite—United Kingdom.....	113	103	103	103	120	87	56	73
United States.....	29	33	34	36	50	54	71	73
Bituminous and Lower Rank—Canadian.....	955	1,003	1,150	1,263	1,249	1,250	1,185	1,220
Bituminous—United Kingdom.....	47	35	18	15	6	5	2	8
United States.....	4	5	19	5	4	7	9	8
Coke from Coal.....	60	54	63	77	72	95	121	163
Industrial—								
Anthracite—United Kingdom.....	1	1	1	1			1	1
Bituminous and Lower Rank—Canadian.....	1,439	1,231	1,396	1,551	1,637	1,620	1,657	1,598
Bituminous—United States.....	2	2	2	10	9	22	40	18
Coke from Coal.....	434	382	544	514	584	470	476	455
Coke and Gas Plants—								
Bituminous and Lower Rank—Canadian.....	700	644	927	855	958	856	887	838
Railways—								
Bituminous and Lower Rank—Canadian.....	728	678	916	1,092	1,267	1,282	1,072	952
Bituminous—United States.....	1	1	1	2	11	57	236	348
Bunkers—								
Bituminous and Lower Rank—Canadian.....	370	410	514	544	695	589	341	384
Bituminous—United Kingdom.....	5	4	4	4	6	10	1	1
United States.....	12	12	12	11	1	1	209	350
Total—								
Anthracite—United Kingdom.....	114	104	104	104	120	87	57	74
Anthracite—United States.....	29	33	34	36	50	54	71	73
Bituminous and Lower Rank—Canadian.....	4,192	3,966	4,903	5,305	5,806	5,597	5,142	4,992
Bituminous—United Kingdom.....	52	39	22	19	12	15	3	1
Bituminous—United States.....	19	20	34	28	25	87	494	724
Coke from Coal.....	494	436	607	591	656	565	597	618
Exports—								
Bituminous and Lower Rank—Canadian.....	204	227	311	356	506	497	495	460

TABLE 2.—CONSUMPTION OF COAL AND COKE IN ONTARIO AND QUEBEC BY CALENDAR YEARS

(In thousands of net tons)

	1937	1939	1940	1941	1942	1943	1944	1945
Retail—								
Anthracite—United Kingdom.....	1,375	1,212	1,040	969	453	501	263	66
United States.....	1,747	2,341	2,223	2,620	3,905	3,666	3,433	3,107
Bituminous and Lower Rank—Canadian.....	587	590	614	651	502	165	66	244
Bituminous—United Kingdom.....	199	60	33	19	1	.....	.....	.....
United States.....	2,010	2,100	2,203	2,469	3,048	4,018	3,393	3,542
Coke from Coal.....	1,000	1,153	1,134	968	692	957	1,287	1,988
Industrial—								
Anthracite—United Kingdom.....	68	68	65	69	46	7	19	12
United States.....	57	58	74	99	180	196	162	157
Bituminous and Lower Rank—Canadian.....	1,713	1,650	1,793	1,568	1,243	962	607	374
Bituminous—United Kingdom.....	5	5	6	17	1	1	.....	.....
United States.....	3,468	3,250	3,635	4,825	6,250	7,089	7,357	6,850
Coke from Coal.....	1,268	1,080	1,698	1,974	2,509	2,539	2,490	2,480
Coke and Gas Plants—								
Bituminous and Lower Rank—Canadian.....	196	199	249	239	171	36	24	21
Bituminous—United States.....	2,399	2,195	2,713	2,895	3,019	3,574	4,115	4,015
Railways—								
Bituminous and Lower Rank—Canadian.....	1,157	1,469	1,593	1,263	629	258	103	122
Bituminous—United States.....	3,005	2,720	3,237	4,619	5,957	7,205	7,170	7,296
Bunkers—								
Bituminous and Lower Rank—Canadian.....	61	68	60	63	44	16	27	9
Bituminous—United States.....	460	460	460	460	517	519	640	955
Total—								
Anthracite—United Kingdom.....	1,443	1,280	1,105	1,038	499	508	282	78
Anthracite—United States.....	1,804	2,399	2,297	2,719	4,085	3,862	3,595	3,264
Bituminous and Lower Rank—Canadian.....	3,714	3,976	4,309	3,784	2,589	1,437	827	770
Bituminous—United Kingdom.....	124	65	39	36	2	1	.....	.....
Bituminous—United States.....	11,342	10,725	12,248	15,268	18,791	22,405	22,675	22,658
Coke from Coal.....	2,268	2,233	2,832	2,942	3,201	3,496	3,777	4,468
Exports—								
Coke from Coal.....	15	24	9	2	3	2	1	2

TABLE 3.—RETAIL SALES OF COAL AND COKE IN ONTARIO AND QUEBEC BY CALENDAR YEARS

(In thousands of net tons)

	1928	1929	1930	1931	1932	1937	1939	1940	1941	1942	1943	1944	1945
Anthracite—													
United States—Domestic Sizes.....	2,739	2,742	2,411	1,907	1,511	1,747	2,341	1,965	2,303	3,357	2,974	2,787	2,347
Buckwheat and Smaller.....	213	234	245	227	180			258	317	548	692	646	760
United Kingdom—Domestic Sizes.....	357	365	422	479	619			368	370	76	92	24	
Buckwheat and Smaller.....	192	332	458	508	620	1,375	1,212	672	599	377	409	239	66
Other Foreign—All Sizes.....	3	50	148	102	37								
Total Anthracite.....	3,504	3,723	3,684	3,223	2,967	3,122	3,553	3,263	3,589	4,358	4,167	3,696	3,173
	(55.4%)	(56.1%)	(55.4%)	(52.6%)	(49.3%)	(45.7%)	(47.6%)	(45.0%)	(46.6%)	(50.7%)	(44.8%)	(43.8%)	(35.5%)
Other Coal—													
United States—High Volatile Bituminous.....	800	784	834	853	852			1,495	1,701	2,092	2,861	2,465	2,674
Low Volatile Bituminous.....	437	455	443	410	402	2,010	2,100	670	723	882	1,063	848	789
Cannel, Smithing and Briquettes.....	23	25	20	12	12			38	45	74	94	80	80
United Kingdom—Bituminous.....	21	37	17	36	45	119	60	33	19	1			
Canadian—Bituminous.....	369	340	370	302	327			544	519	315	161	56	52
Briquettes.....	51	45	37	30	33	587	590	21	31	34	1	3	6
Sub-bituminous.....	55	53	36	32	26			49	101	153	3	7	185
Total Other Coal.....	1,756	1,739	1,757	1,675	1,697	2,716	2,750	2,850	3,139	3,551	4,183	3,459	3,786
	(27.7%)	(26.2%)	(26.4%)	(27.4%)	(28.2%)	(39.7%)	(36.9%)	(39.3%)	(40.8%)	(41.3%)	(44.9%)	(41.0%)	(42.3%)
Coke from Coal—													
Coke made in Canada.....	563	545	684	777	866			900	806	488	572	901	1,156
Coke made in U.S.....	510	629	527	449	490 ¹			234	162	204	385	386	832
Total Coke.....	1,073	1,174	1,211	1,226	1,356	1,000	1,153	1,134	968	692	957	1,287	1,988
	(16.9%)	(17.7%)	(18.2%)	(20.0%)	(22.5%)	(14.6%)	(15.5%)	(15.7%)	(12.6%)	(8.0%)	(10.3%)	(15.2%)	(22.2%)
Grand Total.....	6,333	6,636	6,652	6,124	6,020	6,838	7,456	7,247	7,696	8,601	9,307	8,442	8,947
	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)

¹ Includes 28 thousand tons of United Kingdom Coke.

TABLE 4.—CONSUMPTION OF COAL AND COKE IN THE PRAIRIES BY CALENDAR YEARS

(In thousands of net tons)

	1937	1939	1940	1941	1942	1943	1944	1945
Retail—								
Anthracite—United Kingdom.....			1	1				1
United States.....	4	3	4	3	2	2		
Bituminous and Lower Rank—Canadian.....	2,612	2,445	2,546	2,780	3,109	3,405	3,082	3,308
Bituminous—United States.....	45	40	32	32	48	139	93	107
Coke from Coal.....	60	65	59	62	68	66	57	63
Industrial—								
Anthracite—United States.....	12	6	8	8	10	10	10	10
Bituminous and Lower Rank—Canadian.....	977	950	1,053	1,301	1,446	1,508	1,561	1,526
Bituminous—United States.....	7	10	15	7	3	27	35	33
Coke from Coal.....	28	28	16	19	23	24	23	25
Coke and Gas Plants—								
Bituminous and Lower Rank—Canadian.....	129	163	165	180	181	172	142	125
Bituminous—United States.....	26	1	3			5	34	17
Railways—								
Bituminous and Lower Rank—Canadian.....	2,299	2,239	2,555	3,081	2,970	2,606	2,919	2,949
Bituminous—United States.....	43	37	13	13	208	886	943	853
Total—								
Anthracite—United Kingdom.....			1	1				
United States.....	16	9	12	11	12	12	10	11
Bituminous and Lower Rank—Canadian.....	6,017	5,797	6,319	7,342	7,706	7,691	7,704	7,908
Bituminous—United States.....	121	88	63	52	259	1,057	1,105	1,010
Coke from Coal.....	88	93	75	81	91	90	80	88
Exports—								
Bituminous and Lower Rank—Canadian.....	48	36	38	36	102	462	298	197

TABLE 5.—CONSUMPTION OF COAL AND COKE IN BRITISH COLUMBIA BY CALENDAR YEARS

(In thousands of net tons)

	1937	1939	1940	1941	1942	1943	1944	1945
Retail—								
Bituminous and Lower Rank—Canadian	500	485	558	613	670	717	743	785
Bituminous—United States	4		1	1	1	1		
Coke from Coal	27	23	23	25	33	23	24	31
Industrial—								
Bituminous and Lower Rank—Canadian	390	375	380	344	474	491	452	428
Coke from Coal	99	104	146	144	183	169	144	145
Coke and Gas Plants—								
Bituminous and Lower Rank—Canadian	166	171	192	236	257	263	258	232
Railways—								
Bituminous and Lower Rank—Canadian	285	257	245	276	356	474	437	435
Bituminous—United States						1		10
Bunkers—								
Bituminous and Lower Rank—Canadian	200	241	176	99	180	81	35	22
Total—								
Bituminous and Lower Rank—Canadian	1,541	1,529	1,551	1,568	1,937	2,026	1,925	1,902
Bituminous—United States	4		1	1	1	2		10
Coke from Coal	126	127	169	169	216	192	168	176
Exports—								
Bituminous and Lower Rank—Canadian	103	114	156	140	208	151	217	183
Coke from Coal	36	26	27	37	42	45	39	33