CANADA'S NATIONAL OIL POLICY

AND THE EMERGING WORLD OIL MARKET

by

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PREFACE

Because of its obvious importance to industrial society, and its oft-colourful and dramatic aspects, the oil industry has attracted widespread attention over the decades. Yet, a great newspaper was moved to observe not very long ago:"...thanks to the mixture of unsupported argument, official reticence and sheer hypocrisy which befog the subject, there can be fewer peoples so poorly informed of the global implications of oil...as the Americans."(1) There is, unfortunately, not the slightest reason to doubt that Canadians are no better informed on this subject, or equally unjustified in their ignorance. For there are few Canadian industries which are subject to more government regulation than the oil industry. There are few Canadian industries which have been looked into publicly more than the oil industry. And there are few Canadian industries which make a greater effort to solicit popular approval than the oil industry.

The average Canadian is not only almost entirely innocent of real understanding of today's oil market in its global context, he is also almost totally unaware that it is now in the throes of profound change. As a result, he has little inkling of what the unfolding world oil scene implies for him as a

(1) New York Herald Tribune, March 23, 1948.

major consumer of oil products.

The main purpose of the present thesis is threefold: to appraise Canada's present and foreseeable domestic oil capacities; to describe the international environment within which her domestic oil industry operates, its background and apparent direction; and to assess the validity of her official oil policy.

The writer has received valuable assistance from several sources in government and industry who, because of the sensitivity that prevails there, cannot be identified. He has also received, and wishes to acknowledge gratefully, great assistance from his research director, Professor A. Asimakopulos. Dr. Asimakopulos always found time in his busy schedule to consider, criticize, and clarify the writer's thinking. None of the shortcomings, but much of the merits, if any, of the following are attributable to his help, and that of the others.

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CHAPTER I

CANADA'S PRESENT AND FUTURE OIL RESOURCES

Oil as an energy source in Canada.

Petroleum is a hydrocarbon known in its liquid state as oil and in its gaseous state as natural gas.(1) It is usually found in the sedimentary basins which make up about one-third of the earth's land surface. Well over a century ago, it came into increasingly general use as a lubricant, and through one of its many derivitives, kerosene, as an energy source. This latter use has since been enhanced powerfully by the rapid industrialization of the western world, the invention of the combustion engine, the decline of coal, and numerous other developments that have characterized the twentieth century. It may well be said, therefore, that oil has become to the body economic almost what blood is to the body physical. Not only has oil become critically important to the industrial economy over the decades, its importance has grown, and continues to grow, at an unprecedented rate. This is clearly illustrated on Table I - 1. It is not at all inconceivable that this generation will yet see the emergence of new and superior energy sources such as nuclear and solar power, harnessed to peaceful uses. Nevertheless, oil is very likely to remain important, though its relative importance may diminish.

(1) This is an oversimplification of the chemistry involved, but it suffices for present purposes.

TABLE I - 1

ESTIMATED WORLD PRODUCTION OF ENERGY
(millions of tons of coal equivalent)

	1900	1940	1953
Coal and Lignite	723	1,463	1,641
Crude Oil	27	390	879
Natural Gas	9	108	349
Water Power	2	24	53
Wood and its Products	533	724	730
	1,294	2,709	3,652

Source: Royal Commission on Canada's Economic Prospects, John Davis, Canadian Energy Prospects (Ottawa, 1957), Appendix F, Table 12, p. 378.

The growing importance of oil as an energy source to Canada is even greater than the world trends indicated in Table I - I for obvious reasons, including the relative importance of motorized transport as well as the widespread use of central heating. Whereas in 1920, oil provided only 5% of Canada's requirements, this proportion had risen to 15% in 1930, 20% in 1940, over 30% in 1950 and over 50% in 1960, and the levelling-off point is nowhere in sight.(2)

Canada's crude oil production potential.

Canada's dependence on oil is heavy and growing heavier; but quite apart from external sources, her domestic oil producing potential is large and, as yet, barely tapped. Approximately one-quarter of Canada's land surface

(2) G. David Quirin, Economics of Oil and Gas Development in Northern Canada, (Ottawa, Queen's Printer, 1962), pp. 39-41

consists of sedimentary basins of which about 80%, some 800,000 square miles, are in Western Canada. This area covers southwest Manitoba, two-thirds of Sasketchewan, almost all of Alberta, and a wide strip along the Mackenzie River to the Arctic Ocean. The other sedimentary basins in Canada are to be found in the Hudson Bay lowlands, south-western Ontario, the St. Lawrence Valley, and some parts of the Maritimes.(3)

Over the decades, and especially after 1947, great expenditures of money, effort, and tears have gone into the search for oil in Canada; and although substantial results have been achieved, it may well be said that the surface has hardly been scratched. In Western Canada alone, where an area of some 500,000 square miles is considered particularly favourable for oil, only about 10% has been explored intensively so far; and this is where most exploratory activity has taken place. The virginity of the other sedimentary basins is, therefore, even more striking.

Any estimate of the recoverable oil potential in a given sedimentary basin is, at best, conjectural because of uncertainties as to present and future geology, technological developments, future costs and general economic prospects. The keynote, therefore, is conservatism in respect of both main factors in calculating oil potential in a given area: the volume of sediments and the "accumulation factor".

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(3) Eric J. Hanson, "The Post-War Rise of the Crude Petroleum Industry in Canada," Canadian Political Science Association Conference on Statistics 1960, Papers, (Toronto, University of Toronto Press, 1960), p. 116.

Available data permit reliable estimates only of Western Canada's oil potential. But, since this area presently accounts for over 90% of Canada's annual output and since practically all present and projected exploration activity centers there, the estimates for its sedimentary basin are appropriate here.

TABLE I - 2

POSSIBLE RECOVERABLE RESERVES OF CRUDE OIL AND NATURAL GAS LIQUIDS IN THE WESTERN CANADA SEDIMENTARY BASIN #

Authority	Volume of sediments in cubic miles	Accumulation factor in barrels	Total possible reserves (thousands of barrels)
Canadian Petroleum Ass.	956,738	50,000	50,000,000
Shell Oil of Canada	1,060,000	47,000	50,000,000
The British American Oil Company Limited	789,166	69,380	54,700,000

Excluding the Arctic Islands and the Athabasca oil sands.
Source: Second Report, Royal Commission on Energy, p. 7, (hereafter cited as "Second Report".)

As to the Arctic Islands, excluded from Table I - 2, their ultimate potential has been estimated as being in the vicinity of 33.2 billion barrels on the basis of the volume of sediments of 664,000 cubic miles and an accumulation factor of 50,000 barrels.(4) Estimates for the potentially prolific Athabasca oil sands range from 100 to 300 billion barrels.(5)

The foregoing estimates pertain to ultimate potential

(4) Quirin, op. cit., p. 32.
(5) Second Report, p. 8.

in the indefinite future. More significant are estimates of immediately available and probably available reserves. These are given in Table 1 - 3.

A deeper insight into Canada's present oil-producing capacity and growth trend is offered by Table 1 - 4. This table indicates, among other things, that even in the highly unlikely event that all exploration activity ceased today, Canada could maintain her present volume of crude production for over two decades. The relative strength of Canada's potential is further indicated by this table. It compares Canada's proven potential with a country considered by the cognizanti to be, and likely to continue to be, in a fairly strong state of oil self-sufficiency--the United States.

TABLE I - 3

ESTIMATED CRUDE OIL AND NATURAL GAS LIQUID RESERVES
DECEMBER, 1957
(in thousands of barrels)

Authority	Proved reserves (a)	Probable reserves (b)
Alberta		
Alberta Oil and Gas Conservation Board	3,366,000	.....
Canadian Petroleum Assoc.	2,721,587	816,771
Saskatchewan		
Government of Saskatchewan	675,000	916,000
Canadian Petroleum Assoc.	420,954	172,074
Manitoba		
Government of Manitoba	34,258	5,065
Canadian Petroleum Assoc.	34,258	5,065
British Columbia		
Government of British Columbia	21,266	.....
Canadian Petroleum Assoc.	25,602	44,153

Northwest Territories		
Canadian Petroleum Assoc.	52,858	58,500
Total Western Canada Sedimentary Basin		
Canadian Petroleum Assoc.	3,255,259	1,096,653
The British American Oil Company Limited	4,295,000	

Source: Second Report, p. 6.

It is, however, one thing to show that Canada is capable of maintaining her present level of output for a period that is a long time in an uncertain world, and another to relate her capacity to her needs. Canada has always relied heavily on imports, and continues to do so at present. This fact is a principal feature of the current Canadian oil scene, and one that will be discussed at length below. At this point, however, we are concerned only with physical capacities.

Table I - 5 gives the sources that have supplied Canada's crude requirements over the past twenty-five years. It points up her continuing dependence on imports, even during periods of fairly high exports. This, too, is significant. Even more significant, however, is the fact that in recent years the need for imports was dictated not by Canada's productive potential, but by other considerations. For, as Tables I - 6 and I - 7 show, she has been capable of producing far more crude than she has chosen to produce. Full self-sufficiency is today entirely achievable in purely physical terms. Whether it is desirable from an economic standpoint is, as will be seen below, another matter altogether.

TABLE I - 4

CANADA - UNITED STATES LIQUID HYDROCARBON RESERVES

Region	Proved Reserves (millions of barrels)	As a Per Cent of Canadian Total	Years Supply at 1960 Rate of Production
Alberta	3,536	83.9	25.6
Saskatchewan	523	12.4	10.0
British Columbia	78	1.8	43.9
Northwest Terr.	51	1.2	113.1
Manitoba	21	0.5	4.4
Eastern Canada	8	0.2	7.9
Total Canada	4,217	100.0	21.2
United States	38,429	911.0	13.2
Canada and United States	42,646	1,011.0	14.0

Source: R.A. Simpson, D.M. Nowlan and D.W. Rutledge, A Survey of the Petroleum Industry in Canada in 1960, Mineral Information Bulletin MR52, Mineral Resources Division, Department of Mines and Technical Surveys, (Ottawa, Queen's Printer, 1961), p. 19. (Hereafter cited as Simpson, Nowlan and Rutledge.)

TABLE I - 5

DOMESTIC SUPPLY OF CANADIAN CRUDE OIL AS A PERCENTAGE OF TOTAL CRUDE OIL DEMAND IN CANADA, 1926-60

(thousands of barrels per year)

Year	(1) Domestic Production	(2) Exports	(3) (1)-(2) Domestic Supply Canadian Crude	(4) Imports	(5) (3)÷(4) Domestic Demand	(6) (3)-(5) x 100 Canadian Crude % Domestic Demand
1926	364	602	-237	16,298	16,061	-
1936	1,500	0.006	1,500	35,833	37,334	4.0
1941	10,134	0.295	10,134	46,791	56,925	17.8
1946	7,586	nil	7,586	63,407	70,993	10.7
1947	7,692	0.242	7,692	68,447	76,139	10.1
1948	12,287	0.685	12,286	75,559	87,845	14.0
1949	21,305	nil	21,305	73,947	95,252	22.4
1950	29,044	nil	29,044	78,660	107,704	27.0
1951	47,616	342	47,274	83,284	130,558	36.2
1952	61,237	1,425	59,812	81,200	141,012	42.4
1953	80,899	2,507	78,392	79,478	157,870	49.6
1954	96,080	2,346	93,734	78,772	172,506	54.4
1955	129,440	14,834	114,606	86,678	201,284	56.9
1956	171,981	42,936	129,045	106,470"	235,515	54.8
1957	181,848	55,674	126,174	111,805"	238,079	53.0
1958	165,496	31,679	133,817	104,039"	237,856	56.3
1959	184,778	33,362	151,416	115,289'	266,705	56.8
1960	191,835	42,235	149,600	125,560"	275,160	54.4

' Includes field condensate.
" Includes minor quantities of natural gasoline.
Source: Simpson, Nowlan and Rutledge, p. 72.

TABLE I - 6(6)

ACTUAL PRODUCTION AS A PERCENTAGE OF POTENTIAL PRODUCTION 1956, 1957 and 1958(a)

(in thousands of barrels daily)

Year	Production	Potential	Percentage
1956	451	752	60
1957	478	881	54
1958	435	968	45

(a) The combined production of Manitoba and British Columbia accounts for only 3% of Western Canada's output, and is not considered in this table.
Source: Second Report, p. 25.

TABLE I - 7

ACTUAL PRODUCTION AS PERCENTAGE OF POTENTIAL PRODUCTION 1956 - 1958, ALBERTA AND SASKETCHEWAN

(in thousands of barrels daily)

	Alberta			Sasketchewan		
Year	Production	Potential	%	Production	Potential	%
1956	393	684	59	58	68	85
1957	377	756	51	101	125	81
1958	310	793	39	125	175	79

Source: Second Report, p. 25.

(6) Post-1958 data are not available in precise detail. Indications are, however, that the production-potential ratios have since risen, but only slightly.

The outlook for future crude self-sufficiency.

Although the relative importance of oil as an energy source in Canada is certain to continue increasing over the next twenty years, the likelihood is that the rate of increase will be lower than it was during the past two decades. On that basis, and even if demand rises somewhat faster than anticipated, there are reasonable grounds for suggesting that the outlook is no less favourable than the present. The prospects after 1975 are even brighter. This is elaborated on the following table.

TABLE I - 8

FORECAST OF CANADA'S CRUDE OIL REQUIREMENTS AND PRODUCTIVE CAPACITY

(in thousands of barrels per day)

Year	Requirements	Productive Capacity(a)	Surplus	Deficit
1965	911	1,105	194	
1970	1,218	1,190		28
1975	1,523	1,610	87	
1980	1,817	2,210	393	

(a) Includes Western Canada only.
Source: Quirin, op. cit., pp. 56 and 52

It is particularly significant to note that the capacity figures estimated on the above table are based on the assumption that production will be carried on at such levels and in such manner as will minimize waste and maximize output over time. Thus, it is clear that if she chose or were compelled to do so, Canada might fully satisfy her domestic crude re-

quirements without the help of others and without misusing her oil reserves at the expense of future potential. This impression becomes even stronger when one remembers that the above capacity forecast was restricted to Western Canada. Capacity in the rest of the country, especially the northwest, will undoubtedly be very large. Clearly the Canadian economy is assured of adequate crude oil supplies in the two decades ahead even if foreign sources were to be cut off.

Not crude oil itself, but the products derived therefrom are, of course, what the modern economy requires if it is to function efficiently. It is necessary, therefore, to consider Canada's present and anticipated future capacities to move, refine and distribute oil and its manifold derivatives.

Canada's present refining capacities.

Canada's oil refineries are, like most refineries in North America, market oriented. That is, they are generally located in or near the consuming market rather than at the source of the crude. In the early days of the industry when logistics and markets were much less developed than they are today, refiners located at the oilfield in order to realize economies of scale. With the rapid growth in the number and size of markets, it became feasible to build new refineries at the outlet.

Most of the development of Canada's refining occurred

during the postwar period. Since 1947, almost 900 million dollars has gone into the construction of new refineries and the modernization of existing ones. This produced an average rate of increase in refining capacity of 10% per year during the years 1947-60. Refineries of the most modern type are now located in all provinces except Newfoundland and Prince Edward Island. Canada's refining capacity is the world's fourth largest after the United States, the Soviet Union, and the United Kingdom.(7) The tremendous postwar growth in Canada is indicated on a regional basis on Table I - 9, and Table I - 10 gives her present refining capacity by owner, location and source of crude.

In most oil-refining countries, the historical tendency has been for refining capacity to constantly exceed actual output, often by substantial margins. In general, this has been due to the virtually built-in necessity for refiners to overconstruct capacity so as to keep abreast of a dynamic technology, and to cope with a rapidly expanding demand. Since the 'thirties, revolutionary changes have occurred in refining. The development of "cracking" techniques with their vastly increased productivity made the older, smaller refineries obsolete, or of purely marginal significance at best. Also, the mass acceptance of the automobile as a chief means of transportation combined with the greatly expanded and variegated need for aviation fuels to dictate progressively larger units. As shown on Table I - 11, Canada's experience fully reflects these events.

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(7) Simpson, Nowlan and Rutledge, pp. 64-5.

TABLE I - 9

PETROLEUM REFINERY THROUGHPUT CAPACITY, BY REGIONS, 1945-60

Regions	1945 Capacity bbl/day	1945 %	1950 Capacity bbl/day	1950 %
Maritimes	34,250	14.8	22,300	6.2
Quebec	59,000	25.5	143,000	39.9
Ontario	75,450	32.6	75,200	21.0
Prairies & N.W.T.	41,515	18.0	89,525	24.9
British Columbia	21,000	9.0	28,850	8.0
Total	231,215	100	358,875	100

	1955 Capacity bbl/day	1955 %	1960 Capacity bbl/day	1960 %
Maritimes	18,300	3.0	96,800	10.2
Quebec	210,000	34.0	297,000	31.2
Ontario	148,800	24.0	260,820	27.5
Prairies & N.W.T.	174,850	28.3	196,940	20.7
British Columbia	66,500	10.7	98,700	10.4
Total	618,540	100	950,260	100

Source: Simpson, Nowlan and Rutledge, p. 65.

TABLE I - 10

PETROLEUM REFINERIES IN CANADA AT END OF 1961

Company	Location of Refinery	Source of Crude	Crude Oil Capacity bbl/day
Nova Scotia			
Imperial Oil Ltd.	Halifax	Venezuela	49,000
New Brunswick			
New Brunswick Oil Fields Limited	Weldon	Stony Creek Field, N.B.	300
Irving Refinery Ltd.	Saint John	Middle East & Venezuela	47,500
Quebec			
The British American Oil Co.	Montreal East	Venezuela & Middle East	45,000
BP Refinery Canada Limited	Montreal East	Middle East & Trinidad	26,000
Canadian Petrofina Limited	Montreal East	Middle East & Venezuela	26,000
Imperial Oil Ltd.	Montreal East	Venezuela	77,000
Shell Oil Company of Canada Limited	Montreal East	Venezuela & Middle East	62,000
Texaco Canada Limited	Montreal East	Venezuela & Middle East	59,000
Ontario			
The British American Oil Company Ltd.	Clarkson (Toronto Area)	Alberta Saskatchewan	55,400
Canadian Husky Oil Ltd.	Fort William	Saskatchewan	3,570
Canadian Oil Companies Limited	Corunna (Sarnia Area)	Alberta & Saskatchewan	45,000
Cities Service Company Limited	Trafalgar Township (Toronto Area)	Saskatchewan	18,850
Imperial Oil Limited	Sarnia	Alberta, Sask., Man. & Ont.	94,000
Regent Refining (Canada)Limited	Port Credit (Toronto Area)	Alberta,Sask., Man.	26,000
Sun Oil Company Limited	Sarnia	Alberta, Sask. & Venezuela	18,000

Company	Location of Refinery	Source of Crude	Crude Oil Capacity bbl/day
Manitoba			
Anglo-Canadian Oils Limited	Brandon	Alberta	2,720
Imperial Oil Ltd.	Winnipeg	Manitoba & Sask.	18,500
North Star Oil Limited	St. Boniface	Alberta, Sask. & Manitoba	14,900
Saskatchewan			
The British American Oil Company Ltd.	Moose Jaw	Alberta & Sask.	13,500
Canadian Husky Oil Ltd.	Moose Jaw	Saskatchewan	3,050
Consumers' Co-Operative Refineries Limited	Regina	Alberta & Sask.	16,000
Imperial Oil Ltd.	Regina	Alberta & Sask.	22,500
Northern Petroleum Corporation Limited	Kamsack	Saskatchewan	1,200
Petroleum Fuels Limited	Moose Jaw	(not operating)	(1,100)
Royalite Oil Co. Limited	Prince Albert	(not operating)	(950)
Royalite Oil Co. Limited.	Saskatoon	Alberta & Sask.	8,000
Royalite Oil Co. Limited	Coleville	(not operating)	(4,750)
Alberta			
Anglo American Explorations Limited	Hartell	Alberta	3,600
Bonnyville Oil Refineries Limited	Bonnyville	(not operating)	(1,000)
The British American Oil Company Ltd.	Edmonton	Alberta	7,700
The British American Oil Company Ltd.	Calgary	Alberta	9,000
Canadian Kodiak Refineries Ltd.	Lloydminster	Alberta & Sask.	3,500
Canadian Husky Oil Ltd.	Lloydminster	Alberta & Sask.	5,170
Canadian Oil Companies Ltd.	Innisfail	Alberta	4,500
Imperial Oil Ltd.	Edmonton	Alberta	28,500
Imperial Oil Ltd.	Calgary	Alberta	14,700
North Star Oil Limited.	Grande Prairie	Alberta	2,100

Company	Location of Refinery	Source of Crude	Crude Oil Capacity bbl/day
Texaco Canada Ltd.	Edmonton	Alberta	12,000
Wainwright Producers & Refiners Ltd.	Wainwright	Alberta	4,300
British Columbia			
The British American Oil Company Ltd.	Port Moody	Alberta	18,000
Imperial Oil Ltd.	Ioco	Alberta	23,000
Pacific Petroleums Ltd.	Taylor	British Columbia	1,900
Royalite Oil Company Limited	Kamloops	Alberta	5,000
Shell Oil Company of Canada Limited	Burnaby	Alberta	21,000
Standard Oil Company of British Columbia Limited	Burnaby	Alberta	18,000
X-L Refineries Ltd.	Dawson Creek	British Columbia	2,800
Northwest Territories			
Imperial Oil Ltd.	Norman Wells	Norman Wells	1,500

Source: Mineral Resources Division, Department of Mines and Technical Surveys.

TABLE I - 11

TOTAL RUNS TO STILLS AS PERCENTAGE OF CANADIAN REFINING CAPACITY, SELECTED RECENT YEARS

Year		Can. Refining Capacity (thousands of barrels per day)	Total Runs to Stills (thousands of barrels per day)	Total Runs to Stills as Percentage of Capacity
1950	(a)	358.9	301.2	84
1955	(a)	618.5	537.0	87
1956	(b)	690.0	642.0	93
1957	(b)	760.0	660.5	87
1958	(b)	825.0	663.4	80
1959	(b)	865.0	739.2	85

(a) Actual.
(b) Estimated.
Source: Mineral Resources Division, Department of Mines and Technical Surveys.

Future adequacy of Canadian refining facilities.

As regards the next twenty years, it has been estimated that Canada's refining capacity will probably be as shown on Table I - 12. This, it will be noted, involves a much reduced rate of average annual increase in refining capacity as compared with the decade of the 'fifties. The reason for this is the forecaster's expectation that during the forecast period, the increased use of natural gas liquids as blending stocks will permit higher output relative to refining capacity. The adequacy of this anticipated capacity is indicated on Table I - 13.

TABLE I - 12

FORECAST OF CANADA'S REFINING CAPACITY BY REGIONS
(thousands of barrels per day)

Year	Northern Canada	Western Canada	Eastern Canada	Total Canada
1965	1.4	605	394	1,000.4
1970	1.4	799	500	1,300.4
1975	5	995	600	1,600
1980	5	1,200	695	1,900

Source: Quirin, op. cit., p. 45.

TABLE I - 13

FORECAST OF CANADIAN CRUDE OIL REQUIREMENTS AND REFINING CAPACITY
(in thousands of barrels per day)

Year	Anticipated Refining Capacity	Anticipated Crude Oil Requirements	Anticipated Requirements as Percentage of Anticipated Refining Capacity
1965	1,000.4	911	91
1970	1,300.4	1,218	94
1975	1,600	1,523	95
1980	1,900	1,817	96

Source: Quirin, op. cit., pp. 45 ff.

Canada's oil transportation facilities: their present and future adequacies.

Pipelines are today the overwhelmingly dominant vehicle for moving Canadian crude overland from the oilfield to the refinery. They are also used for transporting products from the refinery to market. But, because of the shift to market-oriented refineries, their importance in this respect is relatively minor. At present, Canada possesses elaborate pipeline systems which effectively connect those parts of the country which use Canadian crude with Western Canada's oilfields. Of these, two are decisively important; the Inter-provincial pipeline which runs from Edmonton eastwards to Toronto and southeastwards to Superior, Wisconsin, and the Trans Mountain pipeline which runs westwards from Edmonton to Vancouver and southwestwards to the Puget Sound area. In 1950, Canadian crude supplied only 22% of Canada's refining capacity. By 1960 this proportion had risen to 55% and, clearly, as is suggested by Tables I - 14 and I - 15, much of the credit for this increased absorption of Canadian crude belongs to Canadian pipeliners.

Existing Canadian pipeline systems appear to be adequate to supply the present transportation needs of those parts of Canada which now rely on Canadian crude (all except the areas to the east of the Ottawa Valley), as well as current export markets to the U.S. Available data do not permit any estimate of their capacity to meet the expanded demand in these areas that is expected to develop in

TABLE I - 14

OPERATIONAL MILEAGE OF CRUDE OIL AND PRODUCT PIPELINES IN CANADA, 1950-60

Year	Miles
1950	1,423
1951	1,577
1952	2,500
1953	3,794
1954	4,656
1955	5,079
1956	6,051
1957	6,873
1958	7,147
1959	9,945
1960	8,405

Source: Simpson, Nowlan and Rutledge, p. 47.

the decades ahead. However, judging from the past behaviour of the industry, especially that of the integrated(8) major firms, it seems likely that pipeline capacity will continue to be at least adequate provided that long run market prospects justify the very high capital investment that goes into the modern large diameter pipeline. This seems to be the over-riding consideration. In the past, the industry has always responded well to the need for new pipelines and has, with the sympathetic aid of government at both the provincial and federal levels, generated the necessary capital whenever long-run market prospects looked reasonably good. There exists every reason to believe that this attitude will continue into the future.

(8) Operating in each of the four phases of the industry; production, transportation, refining and marketing.

TABLE I - 15

OIL PIPELINE DELIVERIES, BY COMPANIES, 1957-60
(barrels)

Company	1960	1959	1958	1957
Imperial Pipe Line Co.	28,915,306	33,011,682	30,054,696	43,792,989
Interprovincial Pipe Line Co.	128,393,797	123,009,905	109,845,891	101,239,559
Montreal Pipe Line Co.	79,170,088	84,371,790	78,547,073	81,428,930
Trans Mountain Pipe Line Co.	41,410,329	35,857,162	29,565,915	56,535,164
Pembina Pipe Line Ltd.	40,589,114	37,915,441	35,004,880	38,045,754
Other pipelines#	219,398,059	200,534,408	175,442,718	157,598,002
Total Deliveries	537,876,692	514,700,388	458,461,173	478,640,398

Includes deliveries of natural gasoline and products as follows:

	Products	Natural Gasoline
1960	49,250,219	481,306
1959	47,029,608	587,061
1958	44,056,079	547,847
1957	44,928,730	583,250

Source: Simpson, Nowlan and Rutledge, p. 56.

Although they are by far the most efficient overland carriers of oil, pipelines are not the only transport facilities available to Canadians. Canada's extensive railway networks also function in this capacity and are available for short term use in the event of contingencies which render existing pipelines inadequate. Logistic difficulties in present markets for Canadian crude therefore appear remote.

As regards Quebec and the Maritimes, the situation is more complicated. At present, these areas rely almost entirely on foreign crude sources; only a small refinery near Moncton, N.B. uses local crude. The others refine Venezuelan and Middle East crudes, the latter increasingly. Some crude imports are brought into Montreal, Canada's largest refining centre, by ocean-going tanker, but over 80% enters via Portland, Maine-Montreal pipeline. In these circumstances, and given present lack of domestic transport alternatives, the logistic outlook for this region would be bleak if foreign sources were to be abruptly cut off. Although ample crude producibility to supply its needs would exist in Western Canada, it would be virtually impossible to deliver it in any appreciable quantity in the short-run. (A pipeline to Montreal could not be built in less than three years). The economic and physical consequeces for Quebecers and Maritimers (winters are severe thereabouts) are frightening to contemplate, and an emergency would certainly ensue. Otherwise, Canada's capacity to move oil fairly efficiently within her own borders is

substantial now, and will probably be so in the foreseeable future.

Marketing facilities in Canada now and in the future.

Canadian facilities for marketing and distributing petroleum products are anything but inadequate. In the case of the main product, gasoline, any motorist can attest that one of the main features of service stations today is their great profusion; especially in urban areas where they tend to congregate in "catty-corner" fashion. Much the same is true of the other products, of which the most important are heating and residual fuels, and latterly, petrochemicals. All populated areas of the country are serviced by extensive regional and national networks of wholesalers, jobbers, and sales representatives of every size and description. These are either independently owned or owned by the integrated firms. They either carry or have immediate access to substantial inventories which are further bolstered by bulk stations located in or near most of the larger centres. Some inter-regional product shipments move by pipeline, as was seen earlier. Most, however, are transported in tank cars, and over shorter hauls, by tank trucks. There is evidently no practical reason to fear for the future adequacy of product transport. Given the ease with which entrepreneurs can enter the marketing field, especially as service station lessees, as capital requirements are minimal, the same is true of the future

adequacy of outlets.

Summary of chapter.

The broad implications of the foregoing discussion may be summarized as follows:

(a) Oil is now and for at least the next two decades will be Canada's leading source of energy.

(b) Canada's proven oil reserves are sufficient to maintain existing crude production levels for a relatively long time. Her probable ultimate reserves are even more impressive. Indeed, the amplitude of Canada's potential production is such that she is physically capable of entirely meeting her domestic needs unaided now and, in all probability, for many years to come.

(c) Similarly, with the important exception of domestic transport facilities to the Montreal refining market, Canada's physical capabilities for the efficient transport, refining and distribution of crude and products are presently good, and very likely to so continue in the foreseeable future.

(d) If, therefore, Canada were to designate domestic self-sufficiency in oil and its products as being in her national interest and transcendent of purely economic considerations, this goal could probably be achieved by the sole addition to existing facilities of a pipeline to Montreal.

CHAPTER II

THE FINANCIAL CONTROL OF CANADA'S OIL INDUSTRY

Although there are several hundred firms presently operating in the Canadian oil industry, the overwhelming majority of them in Western Canada, the group that is fewest in number (see Table II - 1), the "major integrated", is in many ways the most important. This group, which in 1956, numbered a mere 20-odd firms (the number is essentially unchanged today), is of central importance for two reasons: its very extensive participation in all phases of oil in Canada, and its international (in most cases) affiliations and almost global interests. One cannot begin to understand its role in the industry without reference to its international and, on the whole, specifically American character. For, as one knowledgeable writer has said, "the petroleum industry in...Western Canada is mainly an extension of the American."(1)

By 1951, total investment in the Canadian oil industry by firms controlled in the United States reached a total of $636 millions. This represented some 52% of the industry's total investment (long-term indebtedness plus shareholders' equity).

Most of this investment was made, as shown on Table II - 2, during the post-war period. Although some of it

(1) Eric J. Hanson, Dynamic Decade, (Toronto, McClelland and Stewart, 1958), p. 268.

TABLE II - 1

NUMBER OF OIL AND GAS COMPANIES IN OPERATION IN WESTERN CANADA, 1947 and 1956

	About Jan. 1, 1947	About Jan. 1, 1956
Major integrated (active in exploration and development)	11	23
Major independent (active in exploration and development)	4	25
Minor (with production and some with exploratory activity)	53	270
Minor (with land holdings only)	53	87
Total (excluding sundry and royalty companies)	101	405

Source: Hanson, op. cit., p. 267.

TABLE II - 2

PERCENTAGE OF OWNERSHIP OF THE PETROLEUM INDUSTRY IN CANADA

	1945	1951	1956
Canada	58	47	21
United States	39	52	73
United Kingdom and other countries	3	1	6
	100	100	100

Source: Dominion Bureau of Statistics and Davis, op. cit., p. 145.

went into the acquisition of Canada-held securities at higher than book values, the great bulk of the inflow, amounting to about $532 millions, constituted new financing. Altogether, the Canadian oil industry attracted over one-third of the 1945-51 capital inflow from the U.S. to Canada.(2)

Inevitably, this tremendous injection of U.S. capital produced far-reaching effects. For one thing, it laid much of the groundwork for the subsequent political battle cry: "The Americans have taken over Canada's economy, and are running it to her detriment". For another, it transformed the Canadian oil industry as indicated on Table II - 3, and made possible its spectacular post-war financial growth (see Tables II - 4 and II - 5).

Because they are not central to the present thesis, data on United States investments in Canada more current than that cited above have not been compiled in detail. There is absolutely no doubt, however, that the quantitative participation of U.S. capital in the Canadian oil industry increased substantially during the 'fifties.(3) This has further made the leading firms of the aforementioned group, henceforth termed "international majors", almost supremely important to its workings.

Three firms predominate. These are Imperial Oil Limited, British American Oil Company Limited, and Texaco of Canada Limited. Together, this trio accounted for almost

(2) Dominion Bureau of Statistics, Reference Paper No. 37, International Distribution of Ownership of the Petroleum Industry in Canada, (Ottawa, Queen's Printer, 1952), p. 1.
(3) See Davis, pp. 143ff.

TABLE II - 3

ESTIMATES OF FACTORS CONTRIBUTING TO THE BOOK VALUE OF UNITED STATES INVESTMENT IN THE PETROLEUM INDUSTRY IN CANADA (1)
(direct and portfolio investment in petroleum exploration, development, refining, transportation and marketing)

1946 - 1951

	1946-1950	1951	1946-1951
	(millions of dollars)		
Book Value of United States Investment at begining of period shown	115	446	115
Additions			
Capital inflow to Canada from the United States (net)			
Direct Investment in Canada in petroleum exploration, development, and refining	194	140	334
Direct investment abroad liquidated(2)	83	-	83
Other capital inflows affecting total United States investment in controlled companies (3)	2	41	43
Other capital inflows (4)	32	40	72
Sub-total	311	221	532
All other factors (net) (5)	30	-31	-11
Book value of United States investment at end of period shown	446	636	636

(1) Newfoundland is included with Canada throughout this table to preserve comparability.
(2) Gross proceeds of sale by Imperial Oil Limited of interest in International Petroleum Co. Ltd. Only the net movement is included in the category Direct Investments Abroad in the balance of payments, but in this table stock purchased by residents of Canada is deducted in the next entry. Liquidations of other minor direct investments are also included in the entry.
(3) Direct Investment in pipelines, and transactions of unrelated parties recorded as security or other capital movements in the balance of payments. See also note 2.
(4) Transactions recorded as security or other capital movements in the balance of payments.
(5) This residual item reflects among other things adjustments arising from market transactions at prices differing from book values and United States shareholders' interest in net earnings retained in the industry after charges for depreciation, depletion, and amortization of exploration and development expense.

Source: Dominion Bureau of Statistics.

TABLE II - 4

SOME PRINCIPAL STATISTICS OF THE CRUDE PETROLEUM AND NATURAL GAS INDUSTRY, SIGNIFICANT YEARS, 1939-59

Year	Gross Value of Production 000's $	Net Value of Production# 000's $	Net Value of Total Mineral Production 000's $	Net Value of Total Commodity Production 000's $	Gross National Product 000's $
1939	21,476	19,945	297,733	3,153,487	5,630,000
1944	25,591	24,147	310,065	6,952,467	11,850,000
1946	25,313	24,041	322,214	6,723,787	11,850,000
1949	78,674	77,424	570,215	9,685,342	16,343,000
1950	91,040	89,140	657,329	10,874,835	18,006,000
1951	123,057	119,672	770,143	13,103,634	21,170,000
1954	256,141	248,841	900,609	14,165,720	24,871,000
1955	319,861	310,308	1,061,430	15,849,948	27,132,000
1956	417,566	403,672	1,224,102	17,789,257	30,585,000
1957	465,325	448,662	1,308,518	17,920,778	31,909,000
1958	423,776	407,106	1,311,217	18,077,750	32,867,000
1959	455,517	438,435	n.a.	n.a.	34,854,000

Gross value less cost of fuel, electricity, and process supplies.

Source: Simpson, Nowlan and Rutledge, p. 3.

TABLE II - 5

CAPITAL INVESTMENT IN THE CANADIAN PETROLEUM AND NATURAL GAS INDUSTRY, 1947-61;
(millions of dollars)

Year	Exploration	Development and Production	Oil Pipelines	Gas Transmission Pipelines	Rail and Water Transport	Gas Processing	Petroleum Refining
1947	(1)	9.5	-	-	2.6	-	25.7
1948	(1)	37.3	-	-	4.3	-	32.6
1949	(1)	45.0	7.0	-	0.7	-	21.6
1950	(1)	53.9	53.8	-	1.2	-	24.1
1951	(1)	72.1	9.8	-	0.9	-	50.9
1952	59.9	101.6	76.0	2.7	15.9	1.2	60.5
1953	59.1	107.2	71.7	3.8	4.0	0.7	66.1
1954	55.1	126.8	61.0	1.6	2.5	8.5	83.9
1955	67.4	201.6	28.5	17.5	-	2.9	102.9
1956	73.7	252.4	42.5	133.6	1.0	10.5	79.1
1957	77.3	237.8	65.8	242.1	2.2	34.5	81.5
1958	62.4	181.5	21.8	214.8	1.8	40.1	94.9
1959	51.0	191.9	10.1	48.5	0.6	24.4	95.0
1960(p)	47.7	224.3	20.7	78.1	-	19.3	76.1
1961(f)	43.0	219.8	8.1	133.5	-	76.8	32.9

Continued.....

TABLE II - 5 (CONT'D)

CAPITAL INVESTMENT IN CANADA

Year	Marketing		Petroleum and Natural Gas	All Industries
	Oil(2)	Gas(3)		
1947	14.9	4.0	56.7	2,440
1948	9.7	5.6	89.5	3,087
1949	11.3	6.4	92.0	3,539
1950	16.7	11.0	160.7	3,936
1951	18.1	10.1	161.8	4,739
1952	25.0	9.4	352.2	5,491
1953	36.7	13.8	363.1	5,976
1954	46.3	15.8	401.5	5,721
1955	56.5	19.7	497.0	6,244
1956	68.5	46.6	707.9	8,034
1957	74.9	69.8	885.9	8,717
1958	63.6	79.4	760.3	8,364
1959	73.1	89.8	584.4	8,417
1960(p)	66.4	66.5	599.1	8,200
1961(f)	63.6	59.5	637.2	8,336

(p) preliminary.
(f) forecast.
(1) Capital investment in Exploration prior to 1952 is included in Development and Production.
(2) Capital investment in this item chiefly includes outlets reported by the major companies.
(3) Capital expenses in the marketing of gas are on gas distribution pipelines.

Source: Simpson, Nowlan and Rutledge, p. 5.

60% of the total assets of all Canadian companies in 1956.(4) The largest, Imperial Oil Limited, a subsidiary of Standard Oil Company of New Jersey Limited, has assets exceeding $800 millions, and alone accounts for about one-third of Canada's crude production and a similar proportion of her refinery production and product sales. British American Oil Company, controlled by Gulf Oil Company Limited, ranks second with some $400 millions in assets and owns about one-fifth of Alberta's reserves among other holdings. Third place is occupied by Texaco of Canada Limited, a subsidiary of the American Texaco, which has "considerable interests in acreage and in crude oil and natural gas reserves and production."(5) Other U.S. companies importantly engaged in Canadian oil are Socony-Mobil Oil Company Limited, Standard Oil Company of California Limited, Pan-American Petroleum Corporation , Sinclair Oil and Gas Company Limited, Phillips Petroleum Company Limited and Cities Service Company Limited.(6)

The international majors as a group are responsible for probably one-half of Canada's crude production, and as is detailed in Table I - 10, control approximately 80% of her refinery capacity. They have also, directly and indirectly, by far the largest group interests in her pipelines (see Tables II - 6 and II - 7), especially the critically important Interprovincial and Trans Mountain pipelines. And, needless to say, they overwhelmingly control product marketing. Furthermore, the ownership of Canada's oil reserves is pre-

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(4) Hanson, op. cit., p. 268.
(5) Ibid., pp. 267-8.
(6) Ibid., pp. 38-9.

TABLE II - 6

MAIN OIL PIPELINES OPERATING IN CANADA, 1960#

Company	Capacity (bbl/day)
Anglo Canadian Oils Limited	20,000
B-A Alberta Pipeline, Limited	20,000
B-A Saskatchewan Pipeline, Limited	22,000
Britamoil Pipeline Company, Limited	60,000
Edmonton Pipeline Division of Pamoil Limited	15,000
Federated Pipelines Limited	60,000
Gibson group of companies (5 systems)	5,000 to 15,000
Home Oil Company, Limited, Cremona Pipeline Division	18,000
Hudson's Bay Oil and Gas Company Limited, Windfall Line	
The Imperial Pipeline Company Limited	187,000
Interprovincial Pipeline Company and Lakehead Pipeline Company Inc.	121,000 to 434,000
Mid-Saskatchewan Pipeline Dept., Royalite Oil Company Limited	10,000
Montreal Pipeline Company Limited	255,000
Peace River Oil Pipeline Co. Ltd.	20,000
Pembina Pipeline Ltd.	133,000
Rangeland Pipeline Company Limited, Division of Hudson's Bay Oil and Gas Company Ltd.	40,000
South Saskatchewan Pipeline Company	42,000
Sun Pipeline Company	20,000 (est.)
Texaco Exploration Company, Pipeline Dept.	106,000

Company	Capacity (bbl/day)
Trans Mountain Oil Pipeline Company	250,000
Trans-Prairie Pipelines Limited	23,000
Trans-Prairie Pipelines, Ltd (cont'd)Sask.	50,000
Trans Prairie Pipelines (B.C.) Ltd.	
Westpur Pipeline Company-Producers Pipelines Ltd.	130,000
Winnipeg Pipeline Company Limited	39,000

With capacities of 10,000 barrels per day or more.
Source: Simpson, Nowlan and Rutledge, pp. 49-52.

TABLE II - 7

MAIN PRODUCT PIPELINES OPERATING IN CANADA, 1960#

Company	Capacity (bbl/day)
Sun-Canadian Pipeline Company Ltd.	30,000
Trans-Northern Pipeline Company	72,000

With capacities of 10,000 barrels per day or more.

Source: Simpson, Nowlan and Rutledge, p. 53.

dominantly theirs; it being of the order of 80%.

The fact that the Canadian oil industry is financially controlled (to the extent of about 75%),(7) by U.S. oil companies assumes great significance when coupled with the fact that the largest of these(8) also control the workings of the "free" world's crude market--or, at least, have done so until recently. Accordingly, it is only by viewing their Canadian operations on this larger canvas that it becomes possible to understand them properly. This is not necessarily to say that the Canadian subsidiaries of the international majors are consciously indifferent or opposed to Canada's welfare; but rather to emphasize that the eminent firms involved are intimately linked to, and ultimately controlled by, parent firms whose horizons and interests necessarily transcend the purely Canadian.

Because it is quite impossible to discuss any significant aspect of the economics of oil without taking account of the global empire that is the liason of the international majors, this study is, inevitably, heavily concerned with it: its origins, its underlying rationale, its historical modus operandi, and above all, its prospects for continued effectiveness. These matters will be taken up, inter alia, below.

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(7) Davis, p. 145.

(8) Standard Oil Company of New Jersey Limited, Standard Oil Company of California Limited, The Texas Company, Gulf Oil Corporation, and Socony-Mobil Oil Company Inc. These firms, together with two British-Dutch firms, Royal Dutch/Shell Company and British Petroleum Company, constitute the controlling group.

CHAPTER III

THE PRICING OF CRUDE OIL, PART I

Quality price differentials.

Some crudes yield more gasoline per barrel than others. Years ago, therefore, the American Petroleum Institute placed its imprimatur on a scale which has since served as the criterion by which crude prices have reflected this fact. "Light" crudes which give off relatively more gasoline per barrel, stand higher on the A.P.I. scale than "heavy"crudes which are less gasoline-productive. The "lightness" or "heaviness" is measured in terms of degrees, with the number of degrees varying directly with "lightness". Within certain upper and lower limits, "lighter" crudes have generally sold at a premium of 2 cents per degree.

Also, some crudes contain a higher proportion of sulphur than others, and therefore require more intensive refining. This, of course, makes them relatively less efficient to the refiner; and on this score, too, price differentials have long existed. Traditionally, and again within certain upper and lower limits, a penalty of 2 cents per barrel was imposed for every 0.1% of sulphur content. Both the sulphur penalty and the abovementioned gravity differential were calculated on a rule-of-thumb basis. But, because they were apparently deemed reasonably accurate by all concerned, they very soon acquired the mantle of respectability throughout the industry.(1)

(1) Quirin, op. cit., pp. 54-6.

These quality differentials have, during the last fifteen years, lost much of their relative importance to crude prices. The inflation that followed World War II, the greatly increased sophistication of refining techniques, and the expansion of markets less dependent on gasoline than the North American, have all contributed to this decline. It is entirely probable that these trends will continue in the years ahead, especially the latter two, and as a result quality price differentials will wane to the point of practical insignificance.

The background of cartelism.

With the exception of a very short period (1898-1901), when Russia took the lead, the United States was the world's foremost producer and supplier of crude until the end of the 1920's. "...it is not at all surprising that in those days prices in...(the U.S.)...should govern those in foreign lands."(2) The main producing regions were Texas and the Mid-continent. Their crudes, brought by pipeline to ports on the Gulf of Mexico, were there loaded onto ocean-going tankers for delivery overseas. The pivotal price, naturally enough, was f.o.b. port of origin, and "Gulf plus" became the recognized base for crude prices throughout the world market.

The advent of Mexican crude after World War I did not affect matters materially, largely because Mexican oil was (until 1937), dominated by the U.S. majors. In any case, Mex-

(2) Melvin G. de Chazeau and Alfred E. Kahn, Integration and Competition in the Petroleum Industry, (New Haven, Yale University Press, 1959), p. 211.

ico's crude capacity then relatively small, and the points of origin for overseas shipments were all located on the self-same Gulf.

In 1900, the U.S. produced 43% of the world's crude. This percentage rose to 64 by 1910, and there remained until 1920. By 1925, it increased to 71, but to the accompaniment of a widespread chorus of alarums. Fears of an oil shortage had been building up for some time. "It was a holdover fear from a narrow escape from scarcity in 1917-18 when in the midst of war...That it grew into a case of national jitters is not wholly surprising in view of the fact that the military importance of oil in modern war had been demonstrated. Oil took on a vital national defence complexion."(3) The tremendous increase in the use of motorized transport in the immediate post-war years gave this anxiety yet additional nourishment. Near-panic developed, therefore, in 1919 when oil experts published assessments such as this: "The time... is, indeed, well in sight, when the United States...will be nearing the end of some of its available stocks of raw materials on which her industrial supremacy has been largely built ...America is running through her stores of domestic oil and is obliged to look for future reserves."(4)

This gloomy prognosis, which no one seemed to doubt, compelled the U.S. majors(5) to revise sharply their traditional thinking about foreign production. Theretofore, they

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(3) Federal Trade Commission, The International Petroleum Cartel, (Washington, Government Printing Office, 1952), p. 38. (Hereafter cited as F.T.C.).
(4) Ibid, p. 39.
(5) At this time, the group numbered little more than some of the progeny of Standard Oil of New Jersey that were sired by the U.S. Supreme Court in 1911.

had been quite sanguine. The discovery rate of new domestic reserves had been so high, and their domination of transportation and refining facilities so complete, that they were able to effectively control the domestic market although they owned only a minor share of domestic reserves. In short, the combination of a diffuse producing sector, plagued by growing excess capacity, and a unified monopsony in the transportation and refining sectors was one that suited them very well. Understandably, therefore, they reacted to the prospect of a domestic crude shortage with keen alacrity.

When the Americans looked out into the rest of the world, however, they found that others had utilized the opportunities which their previous complacency had afforded. The British, Dutch and French, in particular, had not been remiss. The first two countries, having combined to form Royal Dutch/Shell, had, by 1921, acquired oil concessions in no less than eight different areas, of which Venezuela and Mesopotamia (Iraq) were the most promising. France, too, had gained important footholds in the Middle East.

Nevertheless, the U.S. majors were not dissuaded. They prosecuted their quest for foreign reserves with striking vigour and perseverence. Two firms were particularly aggressive: Standard Oil of New Jersey and Gulf Oil. In Venezuela, they bought, or otherwise absorbed, an impressive number of independent producers, and also entered into extensive joint ventures with Royal Dutch/Shell. By 1925, these three firms held, individually and jointly, practically all of Venezuela's known oil resources firmly in their hands, and under contrac-

tual conditions calculated to permit restriction of output if and when their interests might ultimately so require.

In the Middle East, much the same process took place, but in a manner reminiscent of an earlier, and perhaps more rugged, era. Here, the struggle for the area's presumed oil riches was characterized by wholesale intrigue, threats, secret deals, power politics, and the like.

This is not the place for a detailed review of the frenetic campaign, lasting from 1922 to 1928, which Jersey Standard, Gulf and their compatriots(6) waged for an "open door" to Middle East Oil, in which they received the full support of the U.S. State Department. That has been done elsewhere in rich minutia.(7) It is sufficient to record here only the result: that in 1928, the American group was admitted into partnership with Anglo-Iranion Oil Co. and Royal Dutch/Shell in an entity named "Iraq Petroleum Company Limited" which possessed monopoly concession rights to most of Iraq. The partnership contract, known as the "red-line agreement," (by virtue of the line which the signatories drew on the map to demarcate the geographic scope), also precluded the parties from competing with one another for the oil rights in a huge area embracing most of the old Ottoman Empire. Commenting on this, one writer states: "This agreement is an outstanding example of a restrictive combination for the control of a large portion of the world's oil supply by a group of

(6)Standard Oil Co. of New York (Socony), Atlantic Refining Co. and Mexican Petroleum Co.
(7)See especially F.T.C. and Harvey O'Connor, The Empire of Oil, (New York, Monthly Review Press, 1955).

companies which together dominate the world market for this commodity."(8)

The "red-line agreement", however, contained a number of important defects. One was the fact that it did not prevent non-members from soliciting concessions within the "red-line" perimeter. Another was its failure to enunciate clearly the production, marketing and, above all, pricing obligations of the parties involved. And thirdly, it failed to reflect current supply conditions in the world. For, unlike 1922, when the first pourparleurs began, there was no visible danger of an oil shortage in 1928. Quite the contrary, the problem now was one of large and growing surplus.

The first flaw caused trouble immediately. Gulf had acquired an option to the exclusive oil rights for the island of Bahrein in the Persian Gulf. Its partners, when made aware of this, took the view that the island lay within the "red-line", and insisted on being included in the option; but under conditions which left Gulf bearing all the risks. Gulf, not to be outdone, parried by transferring its option to Standard Oil of California, a non-member. In an effort to prevent the recurrence of this sort of experience, most of the partners urged that the agreement be revised, but to no avail. The French, together with a minor partner, a certain Gulbenkian who held a 5% share, distrusted their associates, and bitterly opposed all attempts to expand the "Brotherhood" (as the partnership was called). The impass remained unbroken until the outbreak of World War II, when it was shelved for the

(8) F.T.C., p. 111.

duration. But in the meantime other firms, individually and in co-operation with some members of the American group, had entered the Middle East and had made further discoveries. The problems raised by this development, however, did not emerge fully until after the war--except, of course, that inter partner harmony suffered further.

The other two defects mentioned above also came to the forefront in very short order and in circumstances wherein the rectification of one necessarily involved the remedy of the other. Just before the "red-line" agreement was concluded, a dispute had developed between Socony and Royal Dutch/Shell over the former's continued purchase, for its Indian market, of Russian crude which the latter had boycotted after the Bolsheviks had nationalized the Russian industry. When Socony refused to heed Shell's appeal for solidarity, Shell began a price war which spread rapidly throughout the world, and inevitably dragged-in the other international firms. Joint action soon ended the price war, but not before a sharp lesson had been learned by all. That, and the sprouting world oil surplus, produced a common resolve to supplement the existing agreement forthwith.

The Athnacarry "as is" agreement.

The task of drafting a constitution regulating the production, marketing and pricing practices of the members of the "Brotherhood" was assigned to three outstanding figures in the world oil industry: Mr. W. C. Teagle of Jersey Standard,

Sir Henri W. A. Detering of Royal Dutch/Shell, and Sir John Cadman of Anglo-Iranian. They came together at Sir Henri's shooting lodge in Northern Scotland and there, in late 1928, they formulated an international working agreement. It was entitled simply "Pool Association", and made the locale, named "Athnacarry", of historic significance in the world of oil. The general aim and purpose of the agreement was to provide for a "stabilization of company shares, co-operative use of existing facilities and controlled addition of new, and protection of world oil prices outside the United States."(9) Specifically, the parties agreed that:

(1) The status quo of 1928 was to be maintained among the "Brotherhood" in their relative positions in world markets.

(2) To control overproduction, existing facilities were to be made available to non-members at a price less than it would cost to create new facilities for their own exclusive use, but not less than the cost to the owner.

(3) New facilities were to be added only when needed, and duplication of facilities was to end.

(4) Production was to carry the same valuation at all points of origin, thus removing price competition. Supplies were to be drawn from the producing area nearest the market.

(5) Surplus production was to be shut in, or offered in other markets at prices not less than those prevailing in those mar-

(9) De Chazeau and Kahn, op. cit., p. 143, (emphasis added).

kets.

(6) The Texas Gulf was to continue as the basing-point for the world.(10)

"These measures, it was explained, would protect the public against an increase in costs due to duplication of facilities, and thus would promote greater consumption."(11)

The parties to the Athnacarry agreement were the colossi of the world oil market, who, between themselves, controlled the overwhelming proportion of its resources and facilities outside of the Soviet Union. The agreement, therefore, and the complementary covenants that followed it, went far to suppress the disequilibrating forces that had operated in the past. Yet, it too, was not without weaknesses."... (the signatories)...could not always agree among themselves, and there was an increasingly important uncontrolled fringe of producers and marketers of various nationalities who were not bound by the main agreement....By cutting even slightly under the cartel's prices...the outsiders became the beneficiaries of the cartel's program." (12) In addition, the agreed-upon world price structure rested squarely on the price level at the Texas Gulf. Prices there were in a state of extreme instability, owing primarily to the recent discovery of huge new reserves. This combined with the further fact that, as noted above, the U.S. market had been specifically excluded from the arrangements, to create a stumbling block of the first

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(10) F.T.C., pp. 199ff.
(11) O'Connor, op. cit., pp. 277-8
(11A) F.T.C., p. 270.

importance. Solving this problem in a lawful manner became, therefore, the next item of urgent business.(13)

Conservation and prorationing in the United States.

After receiving an appeal from Sir John Cadman of Anglo-Iranian for "economic co-operation", the American Petroleum Institute set about preparing a plan for the control of crude production in the United States. In March, 1929, the first proposals emerged: that, in the name of conservation, U.S. crude production in 1928 be declared to be peak production, and that future production be restricted to that level. The plan was submitted to the Attorney General for a ruling as to its validity under the antitrust laws; and there, because he refused to give any assurance of immunity from antitrust action, it foundered.

Undaunted by this setback, the "conservationists" turned to the governments of the various oil-producing states. (There existed good reasons for believing that the states possessed the necessary legal powers to act.) The state authorities were, it soon turned out, not unreceptive to such petitions. They had long been acutely concerned that the American oil industry was replete with "wasteful" practices.

Nor was this concern baseless. The annals of the industry literally abound with examples of waste of the most profligate kind--not only of oil and its geological kin,

(13) The U.S. market had been omitted from the scope of the agreement for the express purpose of avoiding a collision with the antitrust laws. Memories of 1911 were still vivid in the minds of oilmen.

natural gas, but also of money, capital, and human resources.[14] The main root of these tragedies was probably the doctrine, rendered sacrosanct by voluminous Anglo-Saxon jurisprudence, res ferae naturae: the wild beast belongs to its captor. This tenet, together with the migratory nature of underground oil which makes it possible for a driller on one site to "offset" (i.e., steal), the oil from under those adjacent, produced a milieu of wild speculation, internecine competition among hordes of small shoestring operators, and interminably chaotic market conditions. Strong disapprobation was voiced, as illustrated by comments such as these: "The losses thus caused (by the rule of capture) unquestionably mount into the billions of dollars and constitute the most reckless, extravagant waste of natural resources which even the American people have been guilty of,"[15] and: "The...magnificance of the American inheritance and the rapidity and wantonness with which it has been squandered are an almost incredible commentary on human folly....Americans have dealt with their resources...in the pioneer spirit of sheer unmitigated pillage ...."[16] It is not surprising, therefore, that the states reacted positively to the industry's importunate call, especially since it came from the very element whose traditional contrariness had nullified all previous remedial efforts. Consequently, "conservation", now paroled from the realm of

(14) See especially O'Connor, op. cit., passim, and George W. Stocking, The Oil Industry and the Competitive System, A Study in Waste, (Boston, Houghton Mifflin, 1925), passim.
(15) O'Connor, op. cit., p. 144.
(16) Ibid., p. 55.

opprobrium, entered the sphere of practical politics.

However, due to the corrugated voyage of the early New Deal (e.g., N.I.R.A.) through the courts, and other obstructions, it was not until 1934 that an operable scheme emerged. It has continued, essentially unaltered, to the present, and briefly, functions as follows. Each month, the Bureau of Mines of the federal Department of the Interior prepares an estimate of national demand for crude broken down by states. Control agencies for the various oil-producing states(17) then use their respective estimates (with only occasional, minor modifications), to "prorate" the permissible monthly output of their wells. In Texas, the main oil-producing state, individual wells receive their "allowables" on the basis of previously determined "Maximum Efficiency Rates", expressed in terms of calendar days of legal production per month. The entire programme, with the tacit approval of the federal Attorney General, is coordinated by a body established for the purpose called "The Interstate Oil Compact Commission".(18)

United States prorationing--conservation or price-fixing?

To be geologically valid, a conservation plan must conform to the following principles:

(1) There must be no gushers and uncontrolled flush flows by which gas pressure is prematurely lost.

(17) Except for Illinois and California. No control plan exists in the former; but since her share of national crude production is only of the order of some 2%, the effects are negligible. In the latter, a system is administered independently by an industry committee. Antitrust proceedings are continuing.

(18) Eugene V. Rostow, A National Policy for the Oil Industry, (New Haven, Yale University Press, 1948), pp. 27ff.

(2) The number of wells must be kept to a minimum determined by the geology of the field.
(3) The flow from each well must be such as to maintain constant pressure throughout the field.
(4) The oil-gas relation in each well's flow must be at the minimum which will assure a flow of oil.(19)

Only the first of these requirements is fulfilled by the control regulations in Texas and the Midcontinent; the other three are sedulously disregarded. "In the first place, the basic and dominant purpose of our present methods of production control is to limit production to what the Bureau of Mines estimates will be market demand, at a price. There is no reason to suppose that 'market demand at a price' corresponds to the amount which at any time would represent the geologist's optimum rate of withdrawal from oil reservoirs. On the contrary, as new fields are discovered and new methods of extraction employed, the geologist's norm of optimum recovery must change in proportion. The optimum rate of withdrawal from a larger known amount of oil reserve must as a matter of arithmetic be a larger amount."(20)

In 1953, when testifying before the House Committee on Interstate and Foreign Commerce, General Ernest O. Thompson of the Texas Railroad Commission (which, oddly enough, administers that state's control mechanism), stated: "...you cannot ever build up a reserve supply for defense of this country unless you have some incentive to build up this reserve,

(19) Rostow, op. cit., pp. 34-5
(20) Ibid., pp. 35-6.

and it must be carried in the price of the product..." (21) Commenting on this, an academic writes: "To paraphrase Dr. Johnson, defense arguments are the last refuge of the syndicalist."(22) Even this kind of rationalization, however, is rarely offered by defenders of the regime. Usually the attempts to justify it are couched in terms of the need to avoid "waste" and "undue instability", accompanied by assertions that if it did not exist, these pernicious factors would have produced higher prices than those that actually developed in its wake.(23)

Whatever the ultimate price effects of "waste" and "instability" might have been, it is utterly undeniable (see Tables III - 1 and III - 2), that: "It (U.S. crude price) became far more stable after 1934; moreover, with one minor exception, the only way it ever moved was up."(24) Indeed, one may well say that the aim of the entire programme "has consistently been to restrict output to what the market can absorb at prices satisfactory to oil producers and oil-producing states. "(25) If the term "oil producers" is taken to include the international majors in their global operations, it becomes absolutely clear, in the light of the foregoing, that this last-quoted judgment is eminently appropriate. Thus, the deliberate loophole in the Athnacarry and related international agreements was as deliberately plugged. The coterie that was the interna-

(21) James R. Nelson, "Prices, Costs, and Conservation in Petroleum," American Economic Review, XLVIII, 2, p. 506, (emphasis added).
(22) Ibid.,p. 503
(23) Erich W. Zimmermann, Conservation in the Production of Petroleum, (New Haven, Yale University Press, 1957), passim.
(24) De Chazeau and Kahn, op. cit., p. 146, (emphasis added).
(25) George W. Stocking and Myron W. Watkins, Monopoly and Free Enterprise, (New York, The Twentieth Century Fund, 1951,p.522.

TABLE III - 1

CRUDE OIL PRICES AND PRICE CHANGES, 1920-34
(Oklahoma-Kansas, 36 Degree Gravity)

Year	Average Annual Price	Range of Posted Prices		Range as % of High	Number of Price Changes
		High	Low		
1920	$3.40	$3.50	$2.75	21.4%	3
1921	1.79	3.50	1.00	71.4	10
1922	1.72	2.00	1.25	37.5	4
1923	1.58	2.00	1.00	50.0	11
1924	1.60	2.00	1.00	50.0	7
1925	1.85	2.04	1.25	38.7	6
1926	2.13	2.29	1.79	21.9	3
1927	1.42	1.90	1.28	32.6	3
1928	1.31	1.36	1.28	5.9	1
1929	1.36	1.45	1.20	17.2	2
1930	1.25	1.45	0.95	34.5	3
1931	0.64	0.95	0.18	81.1	6
1932	0.87	0.92	0.69	25.0	2
1933	0.61	1.00	0.25	75.0	8
1934	1.00	1.00	1.00	0	0

Source: De Chazeau and Kahn, op. cit., p. 138.

TABLE III - 2

CRUDE OIL PRICES AND PRICE CHANGES, 1934-57
(Oklahoma-Kansas, 36 Degree Gravity)

Year	Average Annual Price	Range of Posted Prices		Range as % of High	Number of Price Changes
		High	Low		
1934	$1.00	$1.00	$1.00	0	0
1935	1.00	1.00	1.00	0	0
1936	1.09	1.10	1.00	9.1	1
1937	1.21	1.22	1.10	9.8	1
1938	1.19	1.22	1.02	16.4	1
1939	1.02	1.02	1.02	0	0
1940	1.02	1.02	1.02	0	0
1941	1.11	1.17	1.02	12.8	2
1942	1.17	1.17	1.17	0	0
1943	1.17	1.17	1.17	0	0
1944	1.17	1.17	1.17	0	0
1945	1.17	1.17	1.17	0	0
1946	1.36	1.62	1.17	27.8	3
1947	1.88	2.57	1.62	37.8	3
1948	2.57	2.57	2.57	0	0
1949	2.57	2.57	2.57	0	0
1950	2.57	2.57	2.57	0	0
1951	2.57	2.57	2.57	0	0
1952	2.57	2.57	2.57	0	0
1953	2.70	2.82	2.57	8.9	1
1954	2.82	2.82	2.82	0	0
1955	2.82	2.82	2.82	0	0
1956	2.82	2.82	2.82	0	0
1957	3.07	3.07	2.82	8.1	1

Source: De Chazeau and Kahn, op. cit., pp. 148-9.

tional majors could now lightheartedly gear their global price structure to the Gulf, reasonably secure in the knowledge that changes at this, the world's highest-cost source,(26) could only redound to their collective benefit.

The heyday of "Gulf plus".

Now securely anchored, "Gulf plus" functioned smoothly until the outbreak of World War II. Throughout, with very few, minor exceptions, the "non-brotherhood" refiner (and ultimately, all consumers of petroleum products), paid the same price for oil shipped from the Middle East as from any other source, with the price ascending in response to every nudge from Texas. "Phantom freight" prevailed on a stupendous scale: all the more so when the market was closest to the crude source and farthest from the Texas Gulf.(27) And the international majors earned huge profits.(28)

In the circumstances, eternal vigilance was the price of cartelism. Two menaces, in particular, lurked constantly: new uncontrolled competition, and irrepressible producibility. The former was especially irksome in Western Europe including the British Isles, where there was a pronounced tendency for small operators to sprout forth to the lure of high, quick profits. Prompt, energetic action by the international majors, however, confined the usurpers to inconsequence on practically

(26) Comparative production costs in the various oil-producing regions are discussed below.
(27) F.T.C., p. 355.
(28) See Table III - 3.

TABLE III - 3

NET INCOME OF THE INTERNATIONAL MAJORS, 1934-1960
(Millions of Dollars)

	Standard of New Jersey	Royal Dutch/ Shell	Gulf	Texaco	Socony	Standard of California	British Petro-leum
1934	46	45	3	6	24	18	13
1935	63	61	11	17	23	19	14
1936	98	85	26	38	43	23	24
1937	148	81	32	55	57	41	32
1938	76	81	13	23	40	29	26
1939	89	24	15	33	35	18	14
1940	124	22	22	32	36	23	15
1941	141	23	34	52	43	30	18
1942	83	23	23	35	31	31	36
1943	121	23	29	43	36	36	28
1944	155	19	42	55	62	44	28
1945	154	23	45	52	42	56	29
1946	178	38	58	71	58	67	45
1947	269	41	98	106	93	107	81
1948	366	49	154	166	133	161	107
1949	269	49	101	133	98	136	83
1950	411	46	111	149	128	151	102
1951	540	48	140	179	162	173	78
1952	541	352	142	181	183	174	66
1953	581	365	175	193	196	189	66
1954	585	406	183	226	187	212	48
1955	709	467	218	263	208	231	129
1956	809	538	263	302	250	268	144
1957	805	630	354	332	220	288	153
1958	562	445	330	311	157	258	176
1959	630	492	290	354	164	254	178
1960	689	497	330	392	183	266	174
Total	10,547	5,903	3,574	4,172	3,387	3,871	2,110

Source: World Crisis, p. 20.

every occasion. [29]The latter peril arose largely in the Middle East, where successive oil discoveries, each more bounteous than the one preceding--in Saudi Arabia, Kuwait and the older areas--created enough potential production to supply the needs of the entire world several times over. But here, too, joint action prevailed, and Middle East production was restricted to a relative trickle. The market results have been summarized as follows: "It is difficult to say what would have happened had production in the Middle East not been in the hands of companies who had strong interests in the Western Hemisphere, companies like Jersey Standard, Socony-Vacuum, and Shell, and later on California Standard and the Texas Co., or who like Anglo-Iranian, knew better than to go all out on their own."(30)

"Gulf plus" modified: the first retreats.

As hostilities developed after 1939, the pattern of distribution of Middle East oil changed radically. Instead of the main outlets being in Western Europe (where the freight-mileage relationship with Texas involved freight absorption by the shipper), new markets in the Eastern Hemisphere, permitting substantial phantom freight, came to the forefront. The main immediate victim was the British navy, and as a result, the British government applied pressure to change the setup. Lengthy discussions followed, and in consequence,

(29) F.T.C., Chap. IX.
(30) Ibid., p. 355, (emphasis added).

a new basing-point, co-existent with that in Texas, was established at the Persian Gulf in 1944. However: "The basic result of the Gulf-plus system continued to be realized, i.e., the quotation of identical delivered prices for each destination regardless of supply source." (31)

Although they had made strong efforts, the British had failed to pry from the international majors that highly secret thing:the cost of producing Middle East crude. When the war ended, the Americans, whose naval people had long chafed at Gulf-priced Middle East fuel, took up the issue. In spite of protracted negotiations and official hearings, the new dual basing-point system (Texas Gulf and Persian Gulf), survived, but not unscathed. For the first time, Middle East cost data had been drawn into the public record, and so extreme were the revealed cost-price relationships, (e.g., the U.S. navy had been buying, during wartime, Bahrein crude at a price of $1.05 per barrel, the cost of which, including royalties, averaged about 25¢), that the slow, but ultimately deadly, seed of revolt became firmly implanted.(32)

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(31) F.T.C., p. 356
(32) Ibid., p. 357-60

CHAPTER IV

THE PRICING OF CRUDE OIL, PART II

The growing erosion of "Gulf-plus".

In 1948, the United States became, for the first time in a quarter-century, a net importer of crude. As long as the reverse situation had prevailed: "They (Gulf base prices) ...carried a plausible justification that the market price in even a freely competitive market would always have to be at the level of the marginal or highest-cost supplies required to satisfy demand. As long as some supplies had to come from the Gulf, therefore, the cost of getting oil from there would determine price--so the argument ran."(1) Now, however, this specious rationale for monopoly pricing became utterly untenable.

Simultaneously with the disappearance of American crude from the world export markets, Middle East production soared. In Kuwait alone, 1946 production of six million barrels increased to sixteen million in 1947, forty-seven million in 1948, ninety million in 1949, and one hundred and twenty-six million in 1950. Inevitably, the pre-existing market area for Middle East crude proved inadequate, and the overflow began entering the U.S. (and Canada) in increasing quantity. To make room for these expanded imports, and those in the years following, domestic production, to the vociferous chagrin of independent producers, was cut-back obligingly

(1) De Chazeau and Kahn, op. cit., pp. 212-3

as shown on Table IV - 1. Although the dual basing-point system remained intact, the point of equalization shifted from the Western Mediterranean to New York.(2)

Trouble developed when, in 1953, the U.S. price level was raised by 25¢ per barrel "in order, it was said, to stimulate exploration and production of domestic supplies for defense needs,"(3) and world prices increased correspondingly. Congress began an investigation, but the main repercussions occurred in Europe where dollar shortages were acute. The Russians seized the opportunity to move into the French market amidst an atmosphere of widespread dissatisfaction. One British oil economist wrote: "If the Americans wish to protect their industry, they should do it at their border and not at the source, as it were, in other people's countries."(4)

The publication of independent studies of the world oil market contributed to the clamour. In 1952, following the issuance of the F.T.C. study quoted frequently herein, the U.S. Department of Justice instituted proceedings to recover sixty-seven million dollars which, it claimed, the international majors had overcharged the Mutual Security Agency on crude shipments from the Middle East to Marshall Plan countries. And, in 1955, the Economic Commission for Europe of the United Nations released a report giving further details of the world pricing system as well as comparative cost data.(5) The following European reaction was charac-

(2) Quirin, op. cit., pp. 58-9.
(3) O'Connor, op. cit., p. 300.
(4) Ibid., p. 302.
(5) United Nations, Economic and Social Council, Economic Commission for Europe, The Price of Oil in Western Europe, (Geneva, 1955).

TABLE IV - 1

TEXAS-SCHEDULE OF PRODUCING DAYS, 1952-61

Year	Total
1952	259
1953	236
1954	194
1955	194
1956	190
1957	171
1958	122
1959	123
1960	103
1961	101

Source: U.S. house of Representatives, Select Committee on Small Business.

teristic: "Europe is being bled by needlessly high monopolistic oil prices. It is estimated that if countries other than the U.S. were allowed to purchase oil at its real economic price, there would be a saving of four hundred million dollars annually in the rest of the world's dollar expenditure."(6) Sales of Russian crude in Western Europe increased substantially.

While these events were taking place, another important development occurred. A number of American firms which, for one reason or another, had never previously sought to acquire foreign sources of production, emulated the practice of the international majors, and went out into the Middle East and Venezuela in quest of low-cost production for their U.S. refineries. Their searches were not unsuccessful. Concessions were obtained in the Kuwait-Saudi Arabia "Neutral Zone" in

(6) O'Connor, op. cit., p. 309.

1954 as well as in other areas nearby, and soon afterwards in Venezuela. "One result of this burst of activity was to increase the number of companies having substantial production in either South America or the Middle East something like treefold. What had been oligopoly became oligopoly with a substantial fringe, some members of which were prepared to fight for markets if necessary."(7) The necessity to do so soon arose.

The evolution of United States import policy.

It was noted earlier that the post-war expansion of crude imports into the U.S. induced increasingly shut-in domestic production, and thereby provoked the bitter opposition of independent producers and integrated firms without foreign reserves. At their behest, the National Petroleum Council under the guidance of the Secretary of the Interior issued, in 1949, "A National Oil Policy for the United States". This declared, in substance, that the national security and welfare of the U.S. require a healthy domestic oil industry, and that while the development of foreign crude sources is desirable, it should be encouraged only as a subordinate objective. Imports from abroad should be permitted only to the extent that they do not supplant domestic production.(8)

This set the official tone. Although the Korean War occasioned one hiatus, and the Suez Crisis another, and the international majors lobbied and otherwise sought to further

(7) Quirin, op. cit., p. 60, (emphasis added).
(8) Sebastian Raciti, The Oil Import Problem, (New York, Fordham University Press, 1958), p. 31.

the cause of increased imports, and in spite of a dilatory Administration, a programme of import restrictions was announced early in 1957. It was to be a "voluntary" programme in the national interest, and importers were "requested" to cut back to 10% below their 1954-6 average in all parts of the country except the Pacific Coast region. This region, known as District V,(9) was declared to be an oil deficit area, and was, therefore, excluded from the programme. Also, as a special dispensation, Canadian crude was "exempted" from the restrictions, but in such a manner as to make the significance of this obscure to many observers.(10)

The international majors, with the open support of the State Department (which was anxious to bolster friendly regimes in the Middle East whose survival depended almost entirely on the continuation of oil royalty revenues), apparently persisted in their attempts to subvert the programme. This led to the replacement of the "voluntary" programme, in 1959, by a mandatory one built along similar lines. The earlier ambiguity regarding Canadian crude was, however, cleared up. Henceforth, Canada's overland crude exports to the U.S. would be unrestricted provided that they did not surpass natural growth in the markets served. "The U.S. market was effectively isolated from the rest of the world by import quotas and proration....As long as imports into the U.S. were unrestricted, the U.S. set a floor on prices elsewhere, while the avail-

(9) Washington, Oregon, California, Nevada and Arizona.
(10) The phrasing of the announcement gave rise to fears that U.S. refiners importing Canadian crude might be compelled to correspondingly reduce other imports.

ability of foreign supplies set a ceiling on the extent of price enhancement possible through the proration mechanism. The U.S. action removed the floor and ceiling."(11)

Market upheavals and plummeting prices.

The sealing-off of the U.S. import market placed the neophyte foreign concession holders in an awkward position. The intended outlets for their crude had been rendered inaccessible, but their obligations to their concessioners remained, and they had already laid out large sums on exploration and development. Posted prices began to slide; the process originating in the U.S. "As this affected the price at which crude could be sold in what was left of the U.S. import market, a cut in Venezuela followed on February 6, 1959 and one in the Middle East a week later. While the Venezuelan cut was 15¢ bbl., the Middle East cut was somewhat larger, and in order to save what was left of the market in the Western Hemisphere, a further cut of 10¢ in Venezuelan prices followed in April."(12) Attempting to maintain its shrinking revenues, the government of Venezuela abandoned the traditional 50-50 profit division in favour of a 60-40 ratio. (Excess capacity in that country was, at the time, in the vicinity of 800,000 barrels per day.)

The main price changes, however, occurred behind the screen of posted prices which were, after all, the mandates of the international majors, and whose chief function was,

(11) Quirin, op. cit., pp. 60-1, (emphasis added).
(12) Ibid., p. 61.

by now, to serve as the basis for the computation of royalties to oil-producing states. The international majors had for years billed their own refineries at much lower prices, preferring to take up their profits at later stages in the integrated operation. Trading at arm's length took place at prices corresponding to what the traffic could bear; and if discounting was necessary, discounting was done. Now, it became necessary indeed, and the neophytes led the way. In the latter part of 1959, their Middle East crude was going into the Far East at a discount of 27¢ per barrel below posted prices, and in early 1960 to South America at a 32¢ discount. By July of that year, Middle East crude was discounting up to 91¢ in the Italian market, and in August Venezuelan crude between 75¢ and $1.00 in others. Since then, discounting has continued to be general.(13)

The re-emergence of Russia in the world oil market.

The foregoing price behaviour resulted from the operation of a number of factors. There was, to begin with, the tremendous crude surplus (estimated at approximately one million barrels per day in both the Middle East and Venezuela),(14) the collapse of "spot" tanker rates following the displacement of regular tankers by the "supertankers" built after the Suez crisis, and the general weakening of the cartel. But it was the emergence of a new "independent" on the world's oil scene that gave events a special dynamism. Well might the petroleum

(13) Quirin, op. cit., pp. 61-2.
(14) Ibid., p. 61.

editor of the New York Times say in 1960: "Growing competition from Russian oil is casting a shadow over many of the markets of the free world that historically have been supplied by the international petroleum companies."(15)

In the early 1950's the Soviet Union's oil industry had recovered sufficiently from the war to begin, as noted above, moving into the Western European market at prices below the Texas Gulf-Persian Gulf base. By 1955, Russia's shipments there amounted to twenty-five million barrels. This figure multiplied threefold by 1958, and sixfold by 1960.(16) In addition, the Russians undersold and displaced considerable quantities of Middle East crude in Japan, India, Ceylon, and perhaps elsewhere. This did not constitute "dumping" in the accepted sense of the term-- the Russians made it a practice to match existing discounts; but, in so doing, they of course contributed to their spreading. Much more important were the terms which the Russians offered, and which the commercial producers could scarcely meet. The latter, who naturally sold for cash (and in dollars or sterling, at that), could only look on in chagrined dismay as the Russians bartered crude for supertankers in Japan, for pipeline equipment in Italy, for refining equipment in West Germany, for rubber and tea in Ceylon, and for other items in other countries. And as will be discussed further below, the Russians made it quite clear that this was likely to be but a foretaste of things to come.

(15) Harvey O'Connor, World Crisis in Oil, New York, Monthly Review Press, 1962), p. 390, (henceforth cited as World Crisis)
(16) A. David Levy, "What Kind of Oil Game is the Soviet Union Playing?" Canadian Business, XXXV, No. 3, March, 1962, p.44.

New producing areas and other new elements.

After some years of exploration and development activity, oil discoveries in the Sahara established proven reserves in excess of five billion barrels by the end of 1961, and the likelihood was that continuing exploration would soon multiply that figure. The same kind of activity had found two billion barrels in Libya, and the outlook there was similar. In spite of the Algerian conflict, a pipeline to the Mediterranean was completed in 1960, and Algerian production increased to 8.4 million barrels as compared with only 1.3 million barrels in 1959. Because her pipelines were still incompletely installed, no Libyan crude was produced, but the delay was not expected to last long. (17) Although the international majors owned very important concessions, either outright or in conjunction with others, the total environment was such as to render their writ much less than absolute. Significant rights were in the hands of the American neophytes and others like them, and the pressures against output-restriction corresponded to those in the Middle East and Venezuela. Secondly, the French government created a marketing organization to distribute the products of Saharan crude in metropolitan France. In spite of the opposition of some of the international majors, it gave every indication of carrying out its plan to displace imports from the Middle East. And, perhaps even worse from the standpoint of the international majors, Caltex, a joint holding of Standard of California and Texaco, broke ranks and entered into a 40% partnership in the entity.(18)

(17) World Crisis, p. 371
(18) Ibid., p. 372.

In Iran, the international majors won what appeared to be a signal victory when, in 1954, Mossadegh, who had nationalized Iranian oil in 1951, was overthrown, and a facsimile of the status quo ante was set up. Their hopes were soon shaken, however. Ente Nazionale Idrocarburi (E.N.I.), an Italian oil company controlled by the Italian government, and managed by an avowed enemy of the international cartel, was granted rights to state-owned Iranian crude in 1957, and authorized to price it independently of the international majors.(19)

E.N.I. had long been a trouble-maker for the international majors. Formed in 1953, it succeeded in piquing the majors to the point where, in 1955, they withdrew from Italian production altogether. Thereafter, it carried the fight abroad: to Iran as mentioned above, and also to North Africa and Western Europe. Today, E.N.I. possesses rights in conjunction with state producers in Egypt, Somalia, Morocco, Ghana, and Libya, and is making active efforts to invade the Sahara and Iraq. In addition to doing business with the Russians (as mentioned above), it has also made marketing inroads in Switzerland, Greece, and Southern Germany. It summed-up its attitude towards the contemporary oil scene as follows: "Today, there is a real possibility of casting off the shackles which impede the achievement of wider autonomy in energy supplies even in such a supranational sphere as the Economic Community of Europe, where Italy is not the only country to have such aspirations."(20)

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(19) World Crisis, pp. 292-302, (emphasis added).
(20) Ibid., p. 403, (emphasis added).

In the Far East, too, events occurred which could not fail to distress the international majors. The President of Indonesia approved legislation in 1960 which aimed at revoking oil concessions to foreigners in "the shortest possible time". This, obviously, was directed against the majors--they were the only foreigners involved in the area. Shortly before this happened, the Japanese agreed to help the Indonesians finance the development of the oilfields in Sumatra which had been nationalized in 1958. In an agreement which could hardly gratify Middle East producers who had traditionally supplied their crude, the Japanese undertook to be repaid not in money, but in oil; and this over a ten year period starting in 1961. And finally, in 1961, Royal Dutch/Shell deviated from the boycott imposed by the U.S. in 1950, and contracted to supply Communist China with 500,000 barrels of oil products. Thus the Internal Security Sub-Committee of the U.S. Senate found itself compelled to say: "The big (international majors) companies now are subject to abrasion between the upper millstone of Soviet Government competition at marketing prices utterly unrealistic to corporations...and the nether millstone of rising demands of the host governments...and are harassed meanwhile by jackal enterprises from Japan and elsewhere on the fringes of their operations."(21)

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(21) World Crisis, p. 404.

CHAPTER V

THE PRICING OF CRUDE OIL, PART III

Russia in the world oil market of the 1960's.

At present, Russia's proven crude reserves amount to thirty-two billion barrels, just a shade below those of the U.S. So vigourous, however, are exploration activities being carried on in Siberia and Turkestan, that Russian reserves may well exceed American by 1970, having doubled by then. Furthermore, the development of these reserves is such that it is expected that, by 1965, Soviet production will amount to two billion barrels annually, and by 1972, will equal present U.S. annual production of two and one-half billion barrels.(1) Tremendous though this rate of progress is, if achieved, its real significance for the world market lies in the use that the Russians are expected to make of it.

By the end of 1960, Soviet crude was displacing some Middle East crude in the following non-communist countries: Italy, Western Germany, Finland, Egypt, Sweden, Japan, France, Austria, and Greece. In addition, the Russians have contracted to supply over one hundred million barrels annually to West Germany until the end of 1963, some seventy-five million barrels to Italy and thirty million barrels to Finland by the end of 1965.(2) All these sales were made at prices well below those of Middle East producers, (e.g., the Italians bought their Russian crude at a laid-down cost of less than

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(1) World Crisis, pp. 387-8.
(2) A.D. Levy, op. cit., p. 46

two-thirds of that from the Persian Gulf), and on the now-familiar barter basis.

Perhaps even more indicative of Soviet intentions is the fact that they are now building, and in 1963, plan to complete, a forty-inch pipeline from the Urals to their satellites in Eastern Europe. This twenty-eight hundred mile pipeline, (named Druzhba, meaning "friendship"), will, it is expected, deliver about one-third of its capacity to the satellites. The remainder will therefore be available to deliver more efficiently, and perhaps more cheaply, whatever future production the Russians may wish to sell in Western Europe. That they will probably have plenty of oil to sell there is suggested by the fact that, by 1965, Russian planners have earmarked about two hundred and fifty million barrels of crude for the export market outside of their bloc. Some of this production has, as has been mentioned, already been committed. But even after deducting these quantities and any others that may be contracted for between now and then, it is evident that the Russians may well have substantial production left over for further competitive marketing.(3) It is not impossible, therefore, that all this may contribute little to firmer world crude prices.

The new oil-producing areas in North Africa.

France, as was indicated above, has made clear her in-

(3) A. D. Levy, op. cit., p. 46.

tention of displacing Middle East crude imports by bringing in crude from the Sahara. If this occurs, large quantities of Middle East production will either have to be shut in, or new markets will have to be found. The effects of the French move, however, will probably be even more far-reaching. For Saharan crude is extremely "light" (i.e., gasoline-productive), and France's domestic gasoline needs are likely to be insufficient to absorb the entire inflow. As a result, products from Saharan crude may overflow out of France and into her neighbors, thus displacing Middle East output, or at least weakening existing price levels.

In addition, the concessionary environment in North Africa is significantly different from that in most of the Middle East. Concessions there are not, as a general rule, held jointly by consortia, but individually by dozens of firms. Each individual firm, therefore, will find itself pressured (very much like North American producers), to replace immediately reserves depleted by production so as to maintain its relative position vis-a-vis the other firms. Inasmuch as the region is yet far from being fully explored, further exploration activity, now being carried on widely, will undoubtedly add tremendously to "proven" capacity. Indeed, some geologists are convinced that the entire North African region consists of a series of oil pools. Thus, the emergence of large new capacity in the area may occur "despite the fact that a slower rate of development might have been preferred in view of ample crude availability in other areas."(4)

(4) Walter J. Levy, The World Oil Industry in the Sixties, (Statement before the Ottawa Branch of the Canadian Institute of Mining and Metallurgy, March, 1960).

Libyan crude production will probably get under way in the very near future. There is reason to believe than when this happens, her crude will have a price advantage over those emanating from the Middle East. For one thing, it will have a locational advantage in many important markets. For another, most of it is expected to be "low-cost". And finally, the Libyan legal and tax system compares favourably, from the viewpoint of producers, with those in most Middle East countries. One of the world's leading oil economists assessed this situation and its possible market effects as follows:

> ...per barrel profits on Libyan production, once it reaches sizable volume, are likely to be attractive. It also provides an incentive for companies with access to Libyan production to compete aggressively for market positions--the low cost of Libyan crude supporting efforts for market expansion; the consequent higher levels of production bringing not only larger profits but also improving the company's return on investment.
>
> The price of Libyan crude may thus actually be established below the point of competitive equalization with Middle East crudes. This would place Middle East oil at a disadvantage and could lead to price adjustments there. In the event, Middle East producing profits would be generally reduced. The resulting reduction in the income of Middle East governments might lead to requests for higher taxes similar perhaps to those in Venezuela. This would further affect the profit rate of the companies on Middle East production.
>
> At the same time, as in the case of Sahara production, Libyan output by any of the major international companies would tend to displace mainly Middle East crude. Beyond that, production by independents would mean added volumes of low-cost oil seeking outlets in competition with, and at the expense of, other sources of supply.
>
> Any reduction in Middle East crude prices will add to the competitive disadvantage of Venezuelan crude. Significantly, the Venezuelan government

> is actively pressing for international prorationing among major producing countries; and has repeatedly stressed that it is more concerned with maintaining the price of its oil than with expanding production. In the course of intensified world competition, however, Venezuela could suffer in both respects, having to take a reduction in prices while at the same time lagging in production. Thus Venezuelan government revenues might well be adversely affected despite the increased tax rates..(5)

The established producing areas: Venezuela and the Middle East.

Venezuelan authorities have aleady, as mentioned above, served notice that price competition on the part of concessionaires under their jurisdiction shall not be carried on with impunity. Reductions in posted prices, or discounts therefrom, will be met, they have warned, by higher taxation, export controls, or even cancellation of concessions. Venezuela's motive for brandishing these threats is quite apparent. During the past thirty years, her national economy has become so transfigured by oil, that were her royalty and related revenues to decline significantly, the consequences might be nothing short of disastrous. Almost certainly, the government of the day would not survive; except, perhaps, (and even this might not help for long), by means of massive repression of popular sentiments. She has repeatedly stated that output-restriction is preferably to falling prices. But, given the global market within which she must operate, and the forces therein with which she must contend, this should perhaps be taken as being more in the nature of a "trial balloon" than a declaration of immutable policy. Her current economic and

(5) W. J. Levy, op. cit., pp. 10-11, (emphasis added).

political situations being what they are, she may be relied upon to fight with any and all means at her disposal for her requisite share of the world market.

To the extent that vehicles for the expression of the popular will are weaker in the Middle East than in Venezuela, where Castroism functions very much like Banquo's ghost, the ability of governments there to survive shrinking oil revenues (no less essential to national economies than in Venezuela), might seem to be correspondingly greater. This, however, should not be taken to mean that Middle East regimes are likely to react to such a contingency with passive stoicism. Indeed, if past behaviour is any criterion, such anticipations would be egregiously naive. As negotiators for the international majors know only too well, money, for Middle East potentates, is a commodity subject to progressively increasing marginal utility. This is why the King of Saudi Arabia, whose father subsisted by way-laying pilgrims to Mecca and general brigandage in pre-oil days, but who today lives in legendary opulence while most of the citizenry huddle amidst impressive poverty and squalor, bargains with an acumen worthy of the canniest "Yankee Trader". This is why the Sheik of Kuwait, who also is not without a humble past, and who now receives oil royalties of the order of two hundred million dollars annually, (per capita annual income in Kuwait is around fifteen hundred dollars),(6) "would naturally expect that these advantages (Kuwait's vastly prolific reserves and

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(6) World Crisis, p. 352.

low-cost production), would bring expanded production in the future, whatever the intensity of competition from crude outlets."(7)

In Iran and Iraq, the authorities' motivations may be different, but their probable effects on the world crude market of the immediate future are likely to be similar. The Shah of Iran is evidently making a serious effort to narrow the standard-of-living-gap between the affluent few and the multitudinous destitute. By using various devices, he has, in recent years, succeeded in significantly increasing his country's share in the value of her crude output, and the indications are that he fully intends to further expand her revenues from this source. "Iran...is impatient to recoup its share of Middle East output. It urges the highest possible production schedules upon the Consortium. The award of two large and promising concessions to companies new to Middle East operations--E.N.I. and Indiana Standard--was undoubtedly linked with a desire to find other market outlets for Iranian crude."(8)

Iraq is not as totally dependent on oil revenues as Saudi-Arabia and Kuwait, though its dependence is very large indeed, being in the vicinity of 85% of government revenues.(9) There, too, however, the "winds of change" have been blowing, and, at times, have approached hurricane proportions. In 1961, her government demanded modifications in

(7) W. J. Levy, op. cit., p. 15, (emphasis added).
(8) Ibid., (emphasis added).
(9) World Crisis, p. 318.

the concession terms with Iraq Petroleum Co. These, if granted by I.P.C. (negotiations are still under way), would mean the surrender by I.P.C of unexploited concessions so that they might be offered to other companies, an increase in royalties, and other things not conducive to either cartelism or restriction of production. In addition, Iraq is presently expanding her pipeline capacity to the Mediterranean and port facilities on the Persian Gulf, and has made clear that she intends that they will be fully used.(10)

The tanker surplus.

It was noted earlier that the development of "super-tankers" in the wake of the Suez crisis of 1957 caused tanker rates to drop sharply throughout the world. This was not, it is now clear, a short, passing phase. Tanker rates remain depressed, and seem highly likely to so continue for at least the next few years. On the average regular-sized tanker, variable costs per barrel of capacity are rather low. This, together with the keen competition for tonnage which current market conditions have ncessitated for "spot" shipments, perpetuates "distress" rates. Nor have rates settled at a floor, however low, if recent trends are symptomatic. Since 1957, fluctuations have been such that the peak rate has been almost thirteen times the low.(11) It is this latter fact, and the likelihood of its continuance, that is perhaps most significant for crude prices. Although low tanker rates natur-

(10) W. J. Levy, op. cit., p. 15
(11) Quirin, op. cit., p. 68

ally confer competitive benefits on those producing areas whose markets lie across extensive water, fluctuations, especially sharp ones, will cause this advantage to ebb and flow; thus contributing materially to price instability.

Attempts to "stabilize" the market.

Given the foregoing, and the burgeoning world crude surplus (conservatively estimated on Table V - 1), which is the underlying bete noire, it is hardly surprising that some of those who stand to suffer therefrom should make efforts to stem the tide. Because Venezuela and the oil-producing states in the Middle East began losing royalty revenues when the world price structure came unstuck in the late 1950's; and because the drift of events augured ill for the future, it was natural for Venezuela, the most vulnerable, to propose a concert of the nations.

Taking as his model Texas prorationing, the Venezuelan petroleum minister urged, in 1960, that the major oil-producing countries combine so as to jointly prevent production in excess of market demand from spilling over onto the world market. His Saudi Arabian counterpart endorsed the idea in principle. The notion, however, though probably still alive as such, has since advanced no further. A main obstacle has been the unremitting opposition of the international majors and other commercial oil interests with the support of the State Department and the Foreign Office. It would appear that rather than open the Pandora's Box of collaboration

TABLE V - 1

FORECAST OF EFFECTIVE CAPACITIES
OF PRODUCING AREAS, 1965-1980
(at 85-95% Load Factor, in thousands of barrels per day)

Area	1965	1970	1975	1980
Canada North	#	#	#	#
Canada West	1,105	1,190	1,610	2,210
Canada East	-	-	-	-
U.S. - Alaska	45	135	270	450
U.S. - East Coast	30	20	20	10
U.S. - Mid Continent	1,805	2,185	2,185	2,040
U.S. - South	6,450	6,550	6,640	6,450
U.S. - Rocky Mountain	950	1,235	1,710	2,280
U.S. - West Coast	1,190	1,190	1,160	1,130
U.S. - Hawaii	-	-	-	-
Mexico	458	561	828	1,170
Venezuela and N.W.I.	3,720	4,455	5,400	6,320
Other Caribbean	270	297	324	342
Other South America	825	1,105	1,485	1,950
British Isles	2	2	3	3
Northwest Europe	285	371	485	618
Mediterranean Europe	114	162	219	294
Soviet Bloc	4,755	6,710	9,150	13,380
Middle East	6,120	7,650	10,200	17,000
North Africa	1,700	2,550	4,675	5,521
East Africa	5	10	15	20
West Africa	77	170	298	425
India	95	142	209	285
Other West Asia	19	38	76	124
Japan	10	10	15	20
Other East Asia	-	5	10	20
Oceania	595	765	1,020	1,275
Australia	-	10	20	40
New Zealand	5	5	10	10
Total	30,630	37,523	48,037	63,387
World Demand (excluding Canada North)	25,796	34,599	46,075	60,606
Surplus Capacity	4,834	2,924	1,962	2,781

Development dependent on availability of markets.
Source: Quirin, op. cit., p. 52.

between concessioner countries, the commercial oil firms much prefer to risk market disturbance of a substantial order. Today, they seem to feel, the concessioners combine for the not unwelcome end of price-fixing; but once the precedent has been set and the liasons formed, might not the ultimate consummations be less than devoutly desirable?

In the Middle East, there are other factors which militate against the kind of unity that might suppress the market forces that have been reviewed in these pages. Briefly (for one could go on at some length), the region's oil-producing states have been utterly incapable, as the history of recent decades demonstrates, of acting concertedly in their common interest in matters infinitely more vital than the probable loss of some, or even much, oil revenues. To expect the sprout of reciprocal confidence, which any marketing scheme must involve, to grow out of the morass of mutual distrust and fratricidal hatred that is the relationship between Saudi Arabia, Iraq, Iran, et al, is surely to don glasses of the most rose-coloured hue. It is, therefore, to be expected that, at the very least, plenty of uncoordinated oil will flow before anything resembling collective stabilizing action occurs. The attendant effects on world oil prices are obvious.

There is little reason to doubt that the international majrs would vastly prefer to restore what one of their spokesmen once described as: "The most successful experiment in world government thus far achieved in the twentieth century."(12)

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(12) Simon N. Whitney, Antitrust Policies, (New York, The Twentieth Century Fund, 1958), p. 141.

The recent behaviour of some of them, however--as witness the Shell-China and Caltex-France deals--suggests that they are not marking-time in the interval. In general, the majors seem to be of two minds as to the kind of action that the developing situation demands. On the one hand, some of their leaders call for an organized policy on the part of the western alliance to cope at least with the threat of Soviet crude exports. On the other hand, they still proclaim publicly that: " Political solutions to economic problems are seldom effective, or even good."(13) Their dilemma was neatly summed-up recently by one of their spokesmen in the following words:

> The competitive nature of international oil operations is such that it is difficult for companies to agree on a common course of action, sound though it may be. Existing laws, particularly antitrust laws in the U.S., make joint action nearly impossible.
>
> Nevertheless we are now faced with a situation where oil companies either act in concert or watch the Soviets disrupt and dominate major international oil markets.
>
> Surely our antitrust laws can be modified to the extent necessary to permit American businessmen to meet successfully the growing Soviet threat to the economy of the Free World.(14)

That the present U.S. Administration views expanding Soviet crude exports with grave concern is beyond doubt. This does not necessarily imply, however, that official U.S. action is imminent. After all, Russian crude has been aggressively marketed in the West's preserves for over five years, without significant counter-measures from Washington.

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(13) World Crisis, p. 410.
(14) Ibid., p. 411.

Nor is it overly probable that the official response, if and when it comes, will be entirely to the liking of the international majors. The Administration, which has not abondoned the antitrust suit begun by its predecessor against them and which has otherwise evidenced its belief that their superprofits are not necessarily synonymous with the national interest, may well seek to attain ends transcendent of, or even in conflict with, mere administered price stability.

CHAPTER VI

PROGRESS AND PROBLEMS IN CANADA'S PRODUCING INDUSTRY

The halcyon years.

Until 1947, when the prolific Leduc field was discovered, the Canadian crude producing industry was of negligible proportions, and Alberta's economy drifted becalmed on billows of stagnant somnolence. The emergence of Leduc dispelled this lassitude, replacing it with a vigourous exhuberance.(1) This boisterousness tapered off, however in 1949, when, for the first time since Leduc, Canadian producers found themselves unable to sell all that they were capable of supplying.

Market expansion; price effects thereof; Alberta prorationing.

The immediate need was to enlarge the market. This required the displacement of foreign crudes in the areas earmarked for penetration, and in order to be competitive there, reductions in wellhead prices became necessary. The need to do this arose from the inevitably higher transportation costs involved in gaining markets further afield. Two market regions seemed within reach: British Columbia to the west, and Ontario to the east. Because of the relative size of the latter market in the light of increasing excess capacity, the thrust was naturally eastwards. Accordingly, the Interprovincial pipeline

(1) See Eric J. Hanson, Dynamic Decade, passim, for a fairly comprehensive treatment of the effects of oil on Alberta's economy until 1956.

was built, and in early 1951, Canadian crude began arriving in Ontario. The accompanying decline in wellhead prices had given Canadian crude a price advantage in the nearer British Columbia and Puget Sound areas. Consequently, following the completion in 1953 of the Trans Mountain pipeline to Vancouver, these markets entered the orbit of Canadian production.

In a further effort to relieve the distress, the Alberta government, through its Oil and Gas Conservation Board, instituted a prorationing scheme in 1950. It was frankly modelled along U.S. lines, and had as its chief objective the familiar aim of preventing supply from exerting downward pressure on crude prices. The mechanics of the scheme are not particularly complicated, and are today essentially similar to what they were at the outset. Each month, refiners submit "nominations" to the Conservation Board stating the quantities of crude they wish to purchase in the month ahead. The Board then divides up the total demand among the various wells on the bases of their "economic allowance" and their pools' "prorated share". The first "allowance" is a minimum quota. It is intended to provide each well with a level of output sufficient to enable its owner to recover his capital costs within a "reasonable" period of time, to cover his operational costs, and to earn a "reasonable" return on investment. The second is arrived at by allocating the remaining total demand among the various pools in the proportion that their "Maximum Efficient Permissible Rates" of production (MPR's) minus "economic allowances" bear to the province's total MPR minus "total economic allowances". Thus, all well operators (except, theoretically, the

most imprudent), are assured of economic survival provided that total quantity demanded exceeds total "economic allowances". They cannot, however, collectively produce more than nominating refiners are willing to buy, and none can expand his sales by lowering his price.

The price-making mechanism for Canadian crude.(2)

Table VI - 1 gives posted prices at a leading Alberta oilfield for the years 1948 to 1959, the changes therein, and the main reasons therefor. It reveals that, superficially at least, the price of Canadian crude is determined by those of competitive crudes at the point on the market perimeter that is farthest (in terms of crude-transport miles) from the wellhead. Canadian crude prices are, therefore, "net-back" prices; being the wellhead prices of the most competitive crude plus transportation to the point of equalization minus transportation thereto from the Canadian wellhead. Since competitive crudes must be foreign ones, upward movements in the exchange rate of the Canadian dollar compel corresponding decreases in Canadian wellhead prices, while the reverse effect is produced by falling exchange rates.

The Canadian crude purchasers within a given market perimeter benefit whenever the price of competitive crude falls, and suffer when it rises. They benefit, also, whenever the market perimeter is enlarged, except when this occurs solely

(2) Inasmuch as the literature is virtually barren on the subject, much of the discussion in this section (itself, on the whole, something of an aside), is to be taken as subjective, deductive, and above all, tentative, in form and content. The present writer expects to undertake further research in the general area of the oil market, and plans to more exhaustively develop this theme, inter alia.

TABLE VI - 1

CHANGES IN POSTED FIELD PRICES FOR REDWATER CRUDE OIL
1948-1959

Year	Dates	Posted Price dollars per barrel	Major reason for changes in wellhead price
1948	Jan-Nov	3.20	
	Dec	2.68	To make Alberta crude competitive at Winnipeg
1949	Sep 24	2.88	Devaluation of the Canadian dollar
1950	Oct 16	2.73	Alteration of exchange rate (Freeing of Canadian dollar)
1951	Apr 24	2.44	To make Alberta crude competitive with Illinois crude at Sarnia
	Jun 1	2.46	Reduction in local pipe line tariff
1952	Apr 23	2.315	Alteration of exchange rate and meeting competition in Sarnia
	Oct 15	2.325	A reduction in Interprovincial pipe line tariff to the Lakehead, offset by currency adjustment
1953	Mar 19	2.385	Alteration of exchange rate and meeting competition at Sarnia
	Jul 21	2.645	Increase in world crude prices reflected at Sarnia and an Alteration of exchange rate
1954	Oct 15	2.555	Alteration of exchange rate
1955	Jan 7	2.485	Price change in Illinois crude and some adjustment for alteration of exchange rate
	Feb 1	2.49	Adjustment to local Alberta pipe line tariff change
1957	Jan 16	2.67	General world price increase reflected at Sarnia
	Aug 30	2.63	Alteration of exchange rate
1958	Apr 12	2.56	Alteration of exchange rate and change in Illinois prices
1959	Mar 24	2.42	Reductions in world posted prices and their impact on crude and product prices in Canadian markets.

Source: Second Report, p. 16.

because transportation costs from the Canadian wellhead to the fringe have fallen. Decreases in transportation costs that do not result in market expansion, on the other hand, redound to their disadvantage. Indeed, they are in the curious position of having a vested interest in deliveries to the point of equalization moving by means of transportation that cost more, not less, and that are less, rather than more, efficient.

Purchasers set wellhead prices by their "nominations" and, as seen above, do so within the context of competitive alternatives. These alternative sources effectively establish the ceiling price. However, because output maxima are dictated by the prorationing system, the prerogatives of producers to adjust their operations within the framework of marginal cost-marginal revenue boundaries are severely compromised. Only in the rare circumstance when total quantity demanded equalled total "economic allowances", would the behaviour of producers be at all analogous to what it might be under a more truly competitive regime; and then only in the limited sense of yielding a "normal" profit. At any other level of demand, the conventional marginal criteria regarding output become even more irrelevant, at least as far as profit maximization in the usual sense is concerned. Presumably, producers would not long operate at a loss. Nor would they long accept lower wellhead prices in order to expand their market unless their demand curves were elastic within the range involved. Also, presumably, they would not long produce units of output whose marginal revenues stood below their marginal costs. But, beyond these near-truisms, it is

difficult to go. Certainly the prorationing scheme in general, and the "economic allowance" in particular, tend to inhibit optimizing behaviour by producers; either in the sense of maximizing profits, or in the sense of minimizing unit costs. This latter fact was forcefully demonstrated by evidence adduced before the Royal Commission on Energy. It made quite clear that prorationing in Alberta operates so as to penalize the more potentially productive producer in favour of the less.(3) Undoubtedly, therefore, many well owners are prevented from producing output whose marginal revenues would exceed their marginal costs.

The matter is further obscured by the fact that producer-refiner relations are very often not at arm's length. It was noted in Chapter II that the international majors own the overwhelmingly predominate share of Canada's refining capacity, as well as the largest single group share of her production. The existence of the small independent refining minority is, as will be seen below, of no small potential significance; but it is evident that integration cannot but modify the market behaviour of the producers involved qua producers. (Although it is made more complex, this is not invalidated by the distilling effect that prorationing has on integration. By virtue of it, the majors are, to varying degrees, rendered heavy net purchasers of Canadian crude; although, in its absence, some of them might be nearly, if not entirely, self-sufficient.) Also, these same firms have, through their international affiliates,

(3) See especially Imperial Oil Ltd. Submission, Part III, Passim.

a very strong voice (to say the least), in determining the above-mentioned ceiling price set by alternative sources of supply.

On balance, it is apparent that the issuance of price through the interaction of autonomous demand and supply is almost entirely aborted by the joint effects of the industry structure and Alberta government policy. The independent producer is guaranteed economic survival as long as quantity demanded suffices to the level of his "economic allowance". But he achieves this security at the cost of the greater part of his enterpreneurial initiative. The major, in his capacity of Canadian producer, is also under restraint. But being the main refiner, and having global horizons and influences, he is infinitely more of a free agent and mover of market forces.

The industry's principal problem of the 'fifties--chronic, growing excess capacity--its main causes and repercussions.

Quite apart from its price objective, Alberta prorationing is, by definition, a device which, because of the "economic allowance", tends to perpetuate the existence of excess capacity. Moreover, the overall environment within which crude is produced there contains, as was suggested above, a number of features which militate towards expanding producibility independently of demand conditions.

Perhaps the most important of these is the operation of a modified rule of capture. Unlike the Middle East, for example, where the oil rights to an entire region are generally

conceded to a single producer (either an individual firm or a consortium of firms), the rights to a given Alberta field are usually divided among dozens, often many dozens, of different producers. It becomes, therefore, a matter of acute concern to each individual producer to ensure that his relative producibility keeps pace with that of the others. He considers himself impelled to seek out and develop new reserves even though no market for them is presently available, or even moderately imminent. Experience has taught him that passivity on his part will probably not be contagious. Furthermore, most Canadian oil leases contain a "drill-pay-or-quit" clause. This makes it costly for a producer to refrain from creating, restricting, or otherwise shutting in capacity (once the reserves are discovered), because of inadequate demand. Alberta's land policies and well spacing regulations further augment the pressure to drill willynilly, and since the provincial government owns most of the acreage, her influence here is tremendous. The result, in times of global surplus, is persistent over-producibility (see Table VI - 2). Another indicator of this pressure to drill is the fact that whereas the average Middle East well produces 4,400 barrels of crude per day in a milieu where compulsion of this kind is absent, the average Canadian well produces only 77 barrels per day.(4)

(4) Imperial Oil Ltd., op. cit., p. 26. Many Middle East wells would, for purely geological reasons, be more prolific in any circumstances, but the degree of disparity would undoubtedly be vastly reduced if the Canadian regimen were more analogous.

TABLE VI - 2

ACTUAL AND POTENTIAL PRODUCTION
OF CRUDE OIL IN ALBERTA, 1946-58
(thousands of barrels per day)

Year	Actual Production	Potential Production(2)	Actual as Per Cent of Potential
1946	18	18	100
1947	17	17	100
1948	29	29	100
1949	54	79	69
1950	74	146	51
1951	126	203	62
1952	161	262	61
1953	210	316	66
1954	240	342	70
1955	310	492	63
1956	393	684	58
1957	376	756	50
1958	311	793	39

(2) "Potential" as defined by the PNGCB.
Source: Second Report, p. 173.

TABLE VI - 3

USE OF FOREIGN AND DOMESTIC CRUDES#, BY REGIONS
1950 - 1958
(in thousands of barrels daily)

	British Columbia		Prairies		Ontario		Que. & Maritimes		Canada	
Year	Im-ports	Total crude supply	Im-ports	Total crude supply	Im-ports	Total crude supply	Im-ports	Total crude supply	Total imports	Total cr. su.
1950	21	21	1	80	69	70	133	133	224	304
1951	22	22	-	93	44	82	162	162	228	359
1952	20	21	-	109	37	93	168	168	225	391
1953	16	23	-	145	30	95	177	177	223	440
1954	5	42	-	126	24	119	181	181	210	468
1955	-	53	-	151	28	139	210	210	238	553
1956	-	60	-	163	25	159	266	267	291	649
1957	-	61	-	153	22	163	284	284	306	661
1958	-	58	-	154	4	160	277	277	281	649

Includes crude oil and natural gas liquids.
Source: Second Report, p. 20.

Because imports of crude into Canada continued to be substantial (see Table VI - 3), in spite of burgeoning domestic excess capacity, demands for federal action to restrict them became increasingly audible as the mid-1950's approached. The most ardent outcry came from the independent producers. They particularly resented the fact that the Montreal refining market lay beyond their grasp, and refused to be consoled by the increased exports to the U.S. which the Interprovincial pipeline had made possible. Nor were they reluctant to receive government intervention; indeed, they vociferously solicited it.

The majors viewed Canada's excess capacity with equanimity although their wells were the ones most extensively shut in, and they waxed enthusiastic over the export prospects in the U.S. In reply to the charge that their receptivity to imports into Montreal arose from their international character (since most foreign crudes emanated from their affiliates), they pointed out that Canadian crude laboured under serious cost disadvantages, and that this alone prevented their acceptance by Montreal refiners.

On this latter score, the majors' contention coincided with emerging independent data. The United Nations, and others, estimated that the production costs of a barrel of crude amount to about 35¢ in the Middle East, 50¢ in Venezuela, $1,85 in the Texas-Midcontinent area, and $1.47 in Canada.(5) To this was added the claim that the cost of bringing crude into

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(5) O'Connor, op. cit., p. 219, and Quirin, op. cit., p. 63

Montreal by supertanker from Venezuela and the Middle East is about one-third the cost of moving it from Alberta via a yet-unbuilt pipeline.(6)

The independents questioned the long run validity of the latter allegation, and dismissed the former as irrelevant. They argued that a pipeline is, by nature, a diminishing-cost resource, and that the transportation differential would therefore shrink before long. Furthermore, they maintained, it is not the comparative production costs of the various crudes that govern the issue, but their prices. To even raise the subject of costs in a world market wherein cartelism neutralizes the potential market effect of comparative costs, is to beg the question altogether. On a laid-down price basis, Canadian crude does not compare too unfavourably. In any event, the important question, they asserted, is whether an industry vital to Canada's national security is to be allowed to languish in stagnation and decay. The U.S. government is facing up to the problem of imports, and Canadian authorities should do the same.

The controversy raged intermittently until the latter part of 1957. But now the excess capacity situation had worsened. U.S. import restrictions were getting under way; an economic recession was developing in both the U.S. and Canada; and unusually clement weather was dampening demand for heating fuels. The federal government abandoned its previous wait-and-see policy, and decided that some kind of action had

(6) Imperial Oil Ltd., op. cit., p. 17

become necessary. To facilitate its deliberations, it appointed a Royal Commission on Energy to investigate and report on the entire subject of oil in the Canadian economy, and on related energy matters including oil's companion commodity, natural gas. The Commission, known popularly as "The Borden Commission" (after its chairman, Mr. Henry Borden), began its work soon afterwards. The principal oil questions aired before it, its recommendations thereon, and their policy effects are discussed in the following chapter.

CHAPTER VII

THE ROYAL COMMISSION ON ENERGY AND THE NATIONAL OIL POLICY

One of the first and most basic issues that the Borden Commission encountered arose from the fact that: "The U.S. and the rest of the world were so far from scheming to get hold of Canadian crude oil that they might even have been relieved if Canada had never found it."(1) The question was what, if anything, was the federal government to do about it.

The independent producers' case.

The independent producers argued that an industry whose productive capacity is 60% shut-in under conditions that seem anything but transitional can scarcely be regarded as healthy. They pointed out further that this state of affairs was particularly damaging to producers like themselves. "The independent oil producer depends for his livelihood almost exclusively upon his ability to find, produce and market his crude oil. His growth depends in the long run upon his ability to build up reserves and thus create a capital asset. His immediate and most pressing problem is, of course, financing which is dependent very largely upon the pay out of his wells. The rate of pay out is tied directly to production and this,

(1) Anthony Scott, "Policy for Crude Oil," Canadian Journal of Economics and Political Science, XXVIII, No. 2, May, 1961, p. 267.

in turn, is governed by his ability to market his oil."(2) The independents' interests and, indeed, their very survival require a high level of production. And because, they claimed, Canada's national interests are identical, the federal government should take steps to assure adequate market outlets.

Export markets in the U.S., they went on, cannot be counted on to provide the solution. To begin with, there was the entire tenor of U.S. import policy which was hardly calculated to fill the would-be foreign supplier, including the Canadian, with boundless optimism. "...the maintenance of incentives to develop Canadian oil resources for strategic reasons is no longer emphasized as a part of the U.S. oil policy." (3) Secondly, and more specifically, the celebrated California market potential (touted by some majors), cannot be considered secure for Canadian production. The California refiner, faced with the prospect of buying prorated high-cost Alberta crude of which he will own, through his affiliates, only a fraction, will justifiably prefer to import his own entirely-owned, low-cost crude from Venezuela and/or the Middle East, quite apart from posted price considerations. The availability of the Puget Sound market, too, is questionable; again because of the "commercial preference" of the international majors, to say nothing of recently-found production in the State of Washington and potential production in Alaska. Prospects in the Midwest were admittedly better. Canadian crude, especially Saskatchewan crude, enjoys a marked advantage there, but with limitations.

(2) Submission by Home Oil Co. Ltd. et. al. to Royal Commission on Energy, p. 14.
(3) Ibid., p. 6.

Refiners in this area who use Canadian crude have not had ready access to other sources. Should these become available, their allegiances might shift. In any case, refiners outside the existing perimeter will probably never eagerly accept Canadian crude. They already have old and good sources of supply, and their suppliers may not take kindly to being backed-out by interlopers from the north. In addition, some Midwest refiners have recently acquired their own production facilities in Venezuela and now have "commercial preferences" of their own. And to make matters still worse, the U.S. Rocky Mountain area is rapidly becoming a substantial source of crude and may soon constitute a competitor to Canada. All in all, the independents contended, the outlook in the existing U.S. export market is not bright, and the chances of expanding it slight.

Since Canada's national interest requires a strong, healthy producing industry, they continued, the only way to loosen the shackles of excess capacity was to enable the industry to carve out new domestic markets. The only such markets open were part of Ontario, Quebec and the Maritimes. For obvious logistic reasons, the Maritimes were beyond reach. This left only the other two; and since Ontario's imports of foreign crude (via products from Montreal), amounted to a mere 60,000 barrels per day, securing them for Canadian crude would, in itself, hardly ameliorate matters. Quebec, or more specifically, the Montreal refining market, however, was something else again. Here was a market importing some 250,000

barrels per day from Venezuela and the Middle East. It was capable, if reserved for Canadian production as it should be, of closing roughly one-half of the gap between Canadian production and producibility (see Table VII - 1). Nor was this a utopian or an unduly selfish view, they averred. If the international majors were compelled by government action to suppress their "commercial preferences" and accept Canadian crude at their Montreal refineries, a pipeline could be built linking Western Canada with Montreal, and Canadian crude laid down in Montreal at a price competitive with imports. The effects could only be beneficent to all concerned (except perhaps the international majors, and their discomfort would not approach hardship). The producing industry would be liberated from its present gloomy uncertainty. The Canadian economy would benefit from the income generated by the construction of the proposed pipeline, and Canada would save large sums of much-needed foreign exchange. In addition, and perhaps best of all, the independents concluded, it would all have been achieved by means that were immune from foreign subversion in the form of restriction of Canada's crude exports, the majors' claims to the contrary notwithstanding.

The international majors' case.

As might have been expected, the international majors dissented from all this. The problems besetting the producing industry, they felt, were for the most part not intrinsic, but due to factors that were "cyclical and random

TABLE VII - 1

ESTIMATED CANADIAN CRUDE OIL PRODUCTION AND PRODUCIBILITY, 1958-67
(in thousands of barrels per day)

Year	Production		Producibility	Production/Producibility	
	Conservative	Optimistic		Conservative	Optimistic
1958	456	456	1,004	45	45
1959	512	520	1,072	48	49
1960	557	577	1,157	48	50
1961	611	542	1,250	49	51
1962	690	728	1,320	52	55
1963	733	779	1,386	53	56
1964	773	829	1,445	53	57
1965	814	882	1,486	55	59
1966	856	938	1,523	56	62
1967	896	994	1,556	58	64

Note: both production forecasts assume that demand in the domestic market will rise to 777,000 barrels per day by 1967. The difference between the "conservative" and "optimistic" estimates of production is therefore due solely to the use of different assumptions concerning the increase in exports over the decade.
Source: Second Report, p. 81.

in nature, and thus temporary in their effect." (4) The recession in Canada and the U.S. inventory liquidation in the wake of the settlement of the Suez crisis, and other factors of a purely seasonal nature--all these had combined to dampen demand for Canadian crude. To attribute this situation to excessive imports was erroneous and unwarranted. The situation was not nearly as desperate as the independents made out. The industry had, since 1948, never produced beyond 70% of producibility; and given normal growth in existing markets, this level was entirely attainable in the future. Furthermore, the production-producibility ratio was not the best criterion for measuring the industry's health; the real yardstick was reserves-output, and here the position was not unsatisfactory. In any case, the international majors pointed out, it was they rather than the independents who suffered most from the existing high excess capacity since the greater part of shut-in capacity was theirs. It was they who bore the brunt of the Alberta government's policy of protecting marginal wells via the "economic allowance", and if changes in the industry's environment were contemplated, revision of Alberta's prorationing, land and well spacing policies might be a good place to start. Still, they conceded, Canadian production was not as high as might be desired. If feasible, it should be increased--not as an urgent necessity, but on general principles.

Government intervention to hand the Montreal market over to Canadian production was strongly opposed. Not because of

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(4) Imperial Oil Ltd. op. cit., p. 23

their"commercial preferences"--no such thing existed. For the Canadian majors, though internationally affiliated, were Canadian first and foremost. It was true that they bought most of their imported crude from affiliates, but only because this was where they had obtained the best prices. Let non-affiliates offer better prices, they claimed, and they would prove their autonomy instanter. The project was to be deplored only because it lacked objective merit. Canadian crude could not be laid down in Montreal at competitive prices--the independents notwithstanding--unless wellhead prices were reduced by from fifteen to thirty-five cents per barrel. This, in turn, would render the return on investment in the production industry so low that the industry's ability to attract capital would be grievously, if not fatally, impaired. Considering these and other related factors, the majors who own Montreal's refining capacity could scarcely be expected to voluntarily support a pipeline to Montreal either with funds or throughout guarantees. Only if the federal government specifically barred imports into the area was the pipeline at all feasible. This would require a veritable battery of controls, however; and once the principle of state regulation was thus admitted, the consequences for an industry which operated best when such regulation was kept to a minimum might well be disastrous in the end.

Not only was the state of the industry much better than the independents claim, the international majors argued, so was the prospect of expanded exports to the U.S., especially

in the Puget Sound area. Admittedly, Puget Sound and the other U.S. markets will not absorb as much Canadian crude in the next few years as would Montreal; but their motives for doing so would be more soundly-based and healthier for the Canadian industry as a whole. This would become especially apparent later on, when the fact that the U.S. accounts for over half of the free world's demand for oil, but possesses only 14% of its reserves made itself increasingly felt: provided, of course, that Canada does not arbitrarily restrict her own crude imports and thereby provokes retaliation.

The problems restated.

These, then, were the main questions raised before the Borden Commission. Was the Canadian producing industry in an unduly perilous condition owing to existing excess capacity, and would this condition persist if left to itself? Was the delivery of the Montreal market to Canadian production with its attendant slate of government controls likely to resolve the situation for the foreseeable future? Or should Montreal refiners be left free to continue their imports while Canadian producers looked to the U.S. for expansion, and was this expansion likely to materialize? Above all, what was the proper responsibility of the federal government in these matters and how could it best be discharged?

The Commission's recommendations.

The Commission had little hesitation in finding that: "The present level of production in Canada is low relative to capacity and it is highly desirable that it should be substantially increased."(5) "...Canada's need to take action is as urgent as was that of the United States..."(6) As to the best means of restoring the industry, so "essential" to Canada, to a state of "health, strength, and vigour", the Commission, however, was less unequivocal. Undoubtedly, the acquisition of the Montreal market by domestic producers would appreciably reduce excess capacity. But, on the evidence, it appeared that this could not be done without significant reductions in wellhead prices, and certainly not without elaborate government controls. On the other hand, the Commission felt, exclusive reliance on export markets in the U.S. is no panacea. For the availability of these markets depends on U.S. import policy, and though Canada's neighbour and ally may be depended upon to be sympathetic to her interests, she (the U.S.), has excess capacity problems of her own. It depends also, and in the short run perhaps largely, on the ability of the international majors to transcend their "commercial preferences", the existence of which the Commission recognized. It depends, too, as does the Montreal alternative, and indeed the entire financial basis of the Canadian industry, on the likelihood that

(5) Second Report, p. 131.
(6) Ibid., p. 132.

world prices do not seriously decline. Given the existing and foreseeable world oil surplus, this prospect is not remote. Should it occur, the effects on Canadian crude prices, now functionally bound to those in the world, could be "highly injurious to the Canadian industry."(7)

In the circumstances, and although conscious of the uncertainties inherent in the situation, the Commission decided that the industry (read the international majors), should be given the opportunity of alleviating the yoke of excess capacity by its own efforts before the federal government took direct action towards this end. The least drastic means of achieving this, they had concluded, was to sufficiently expand exports to the U.S. (while setting in motion measures ensuring that Canadian crude will be used in all domestic markets now accessible by pipeline). This would "enable the industry in Canada to expand and maintain a high level of production."(8) Specifically, it should accomplish a production level of 700,000 barrels per day by the end of 1960 and higher levels thereafter.(9) Only if this were achieved should the Montreal market be permitted to continue its exclusive dependence on imports. Such, in essence, should be the government's oil policy, at least for the present. The government was advised to so declare itself and to instruct the National Energy Board to follow closely events in this light, and periodically report the industry's progress.

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(7) Second Report, p. 136
(8) Ibid., p. 137
(9) Ibid., p. 138.

The National Oil Policy.

On February 1, 1961, the Minister of Trade and Commerce rose in the House of Commons and announced that the government had decided upon a national oil policy aimed at achieving a production level of 640,000 barrels per day for 1961, and 800,000 barrels per day by 1963. These targets were to be reached along the lines advocated by the Bordon Commission. Although the government vastly preferred voluntary co-operation from the industry, it would not hesitate to take formal steps to gain its objectives, the Minister made clear, should the industry's performance falter. The National Energy Board was empowered to require from producers such data as it required, especially as to imports, to better enable it to assess the situation on a monthly basis. And thus it was that the recommendations of the Borden Commission were accepted, and their basic premise of high Canadian production made the cornerstone of Canada's official oil policy.

CHAPTER VIII

THE VALIDITY OF CANADA'S NATIONAL OIL POLICY

The National Oil Policy in action.

If one accepts as sound the root premise of the National Oil Policy that Canada's interests demand a high level of domestic crude production, and assuming that the targets set constitute a "high" level, one is driven to admit that the Policy is well on its way to success. Although the beginning was somewhat unpromising, it now appears that the production targets for 1963 will be achieved, and that exports to the U.S. are increasing as hoped. Final figures for the year 1961 are not yet available; but it is authoritatively expected that they will reveal that the target for that year (640,000 barrels per day), has been reached--mainly due to an increase in exports to the U.S. of 67,000 barrels per day over 1960.(1)

This performance has been acclaimed by the international majors (it could not have taken place without their co-operation), and represented as vindicating their claim that a "satisfactory" level of Canadian production is possible without interference with the status quo in the Montreal refining market. Though somewhat mollified, the independents remain disconcerted. They continue to proclaim sporadically that the U.S. market cannot be depended on, and that only the reserva-

(1) E.D. Loughney, "Canadian Petroleum Industry, 1961 Review and Outlook," The Monetary Times Annual National Review, 1962, p. 90.

tion of the Montreal market for Canadian crude will give long-run relief to the problem of excess capacity. The only questions that are not raised publicly by any of the parties (including the federal government), are whether the emerging world crude situation is not rendering dichotomous the interests of the Canadian producing industry and those of Canadian consumers of crude products, and whether the National Oil Policy is not favouring the former at the expense of the latter.

The sensivity of Canadian crude prices to falling world crude prices.

In all the markets penetrated by Canadian producers since 1947, the displaced suppliers were American. Consequently, Canadian wellhead prices netted-back on the basis of the posted prices of alternative U.S. crudes. Throughout most of the intervening years, this made little difference because the cohesion of the international cartel tied world posted prices to a comparable base. It would, however, have made more difference in recent years, the years of the cartel's travail, when world crude prices sagged repeatedly, but for a number of factors. Firstly, most of the price decreases assumed the form of unofficial discounts from posted prices: the drops in posted prices were fewer and smaller. Secondly--and this is more important--the only Canadian markets serviced by imports from Venezuela and the Middle East during these years were in Eastern Canada, and there the international majors own virtually all the refining capacity. It is hardly surprising

that they chose to retain the full benefits of reduced import costs. (There is reason to believe that they now buy from foreign affiliates at going discounted prices.) Existing circumstances combined to abet their windfalls. The lowered import prices were probably not so low as to place Canadian crude at an obvious price disadvantage in even its easternmost markets, especially in the absence of a pipeline to Montreal. And the atmosphere in Canada was then--to put it very mildly indeed--hardly conducive to the expansion of imports, and the further displacement of domestic production. Far better, it seemed to them, to quietly reap the side gains of winds that otherwise blow little good, and hope for the return of "stability".

If the prognosis suggested in Chapter V is appropriate, it is entirely within the bounds of probability that the continuing descent of world crude prices will soon put Canadian crude at a price disadvantage in Ontario, and perhaps also in Manitoba. Indeed, this may have happened already.(2) It is not unlikely, therefore, that the independent refiners in those areas (see Table I - 10), who are now paying the higher Canadian wellhead prices plus transportation, will shortly raise their voices in protest. This likelihood will grow in the next few years. It is even conceivable, if current world trends continue, that demands will emerge for the construction of a pipeline from Montreal to say, Sarnia, <u>for the purpose of moving imported crudes westwards</u>. It is highly doubtful that all the independent refiners will remain silent in the face of a situation which permits their integrated competitors

(2) Authoritative persons, who decline to be quoted, have intimated as much to the present writer.

to gain benefits from which they are arbitrarily excluded; and once some of them break ranks, the others will probably follow.

The remnants of the facade of "continental pricing", whereby Canadian wellhead prices are linked to those in the U.S., are bound to shrivel away under the assault of world events. There is no foreseeable prospect that the U.S. will once again become a net crude exporter--at best, she will hold imports to their present levels. The fact that the only competitive alternatives to Canadian crude are those abroad will become increasingly manifest; and in the light of the foregoing, the disintegration of world price levels is almost certain to generate strong downward pressures on Canadian prices.

The resilience of Canada's producing industry to falling world crude prices.

Evidence submitted to the Borden Commission indicated that Canadian producers are earning, on the average, in the vicinity of 7-12% annually on invested capital, and that reductions of 25-50¢ from then-existing price levels would compress these earnings to 5-8%.(3) It was argued at the time that earnings of the latter order would be inadequate for many producers, and would probably force them out of the industry. Notwithstanding the fact that oil companies are rather notorious for reporting understated book profits

(3) See especially, Imperial Oil Ltd., Supplementary Submission, Part II, passim.

(by means of technically exaggerated, though legal, depreciation, depletion, and other amortization allowances, etc.), the predicted exodus from the producing industry is not improbable if wellhead prices are forced down. This is particularly true with respect to the independents. They finance the bulk of their operations by means of outside borrowings, and a substantially reduced marginal efficiency of capital may well be insufficient to sustain them. The survival prospects of the majors are, of course, infinitely better. Although they avail themselves of external capital for policy reasons, they are quite capable of carrying on operations without reference to market interest rates, and without much fear of insolvency. In fact, their domestic resources are so great in themselves (to say nothing of their international means), that they will unquestionably be able to weather prolonged deficits, let alone reduced earnings.

In spite of the fact that Alberta has recently modified somewhat her well spacing regulations as well as the "economic allowance", there is little reason to believe that producing costs have been significantly reduced as a result. Neither have other cost components decreased in recent years. It is therefore certain that if the price effects forecast here materialize, and if no substantial government action is taken (e.g., reduction of royalty rates and/or pipeline tariffs, revisions of prorationing), profit margins will shrink severely. They will shrink even if the market perimeter does not contract; the more so if it does. Given the great vulnerability

of the independents, and the even greater invulnerability of the majors, it is obvious that this contingency will not enhance the degree of competition in this not overly competitive industry. It may be doubted, however, that either Canadian producibility or the rate of exploration will seriously diminish. Apart from whatever markets will exist in the U.S., Canadian crude will probably have the advantage in most of Western Canada, especially if its price is reduced. Thus, although shut-in capacity will be higher than ever, the majors and the hardier independents may be relied on to keep the flag flying. As regards exploration, the general rule everywhere seems to be that: "even...where they have no market...the major companies tumble over each other in an attempt to get new reservations and new wells. As far as one can see, each firm's chief motive is to maintain its share of the entire industry's reserves, even if these are not needed."(4)

Should market events develop as anticipated above, there is, therefore, no reason to fear the demise of Canada's producing industry. Its scope may be truncated; its profitability may be reduced; it may be more monopolistic than ever before; but it will continue to play an important role in the economy of Western Canada.

The sensitivity of Canadian product prices to falling crude prices.

Experience in the U.S. indicates that while the chronological relationship has varied somewhat of late, the historical

(4) Scott, op. cit., p. 272, (emphasis in original).

tendency has been for crude and product prices to move in the same direction.(5) In the words of the author of an expert study of the subject: "...there is only one set of supply-demand factors in the oil industry...namely, the supply of crude oil and the demand for refined products... the highly integrated character of a large part of the operation makes it possible for the pressure of crude to be exerted directly upon the refined product markets."(6) Although published data on Canadian experience are very scanty, it seems reasonable to assume that it corresponds to the American.

The above-mentioned writer notwithstanding, it may also be possible for integration to appropriate unto itself all or most of the benefits of falling crude prices when demand for product remains stable or is rising. When one considers that the majors own about 90% of Canada's refining capacity, this becomes a possibility which cannot be dismissed summarily. On balance, however, the chances are that falling Canadian crude prices will be followed by falling product prices. For one thing, all of the majors would have to steadfastly hold the product price line, or none of them could. This would necessarily require a very high degree of collusion, tacit or overt, and the likelihood is great that trouble with the anti-combine authorities would ensue. The independent refiners would probably constitute an even more formidable obstacle, even if the majors somehow combined to sustain product prices.

(5) Ralph Cassady, Jr., Price Making and Price Behaviour in the Petroleum Industry, (New Haven, Yale University Press, 1954), pp. 134-40.
(6) Quoted in De Chazeau and Kahn, op. cit., p. 419.

The prospect is great that at least some of them would yield to the temptation to undercut the majors with the view of capturing new markets. This alone will do much to discourage any attempts to tamper with the traditional crude-product price connection.

Economic effects of falling Canadian crude and product prices.

During the past fifteen years, the producing industry has brought tremendous benefits to the economy of Western Canada directly (especially Alberta), and to the rest of the country indirectly via the federal-provincial tax sharing agreements. In Alberta alone, the industry generates almost one-half of that province's total personal income, contributing approximately 700 million dollars annually.(7) The industry's importance to the economies of Sasketchewan and Manitoba is, of course, much smaller, but it is far from negligible. A significant decline in the value of its output, and in its rate of investment (i.e., exploration and development), would undoubtedly dampen economic conditions in the areas most affected, particularly if one accepts the suggested regional multiplier of two.(8)

There are plausible reasons, however, for believing that the materialization of the anticipated and postulated market phenomena would not affect the economies of the oil-producing provinces too deleteriously. Substantial production would still be carried on. The continuation of wide-

(7) Hanson, Dynamic Decade, pp. 256-61.
(8) Ibid., p. 129.

spread exploration activity is highly probable. Prorationwould remain a force for a high level of development of reserves, as would the aforementioned proclivities of the majors. Such displaced capital and other resources as might exist would still be available for other, more economic purposes. In addition, the federal-provincial tax sharing agreement might now operate in reverse. It could compensate Western Canada for its shrinking producing industry, and admit it to its share of the benefits accruing to the other parts of the country from reduced product prices.

That these benefits will be very substantial is obvious considering the tremendous value of the petroleum products consumed by Canadians. In recent years, petroleum has accounted for some 25% of the value of Canada's entire mineral production. It has amounted to nearly 440 million dollars annually.(9) Add to this the roughly 300 million dollars of annual net imports of crude and products into Canada,(10) and mark them up to retail prices, and the fact becomes quite apparent that Canadians spend huge sums each year on the products of oil. Any substantial decreases in product prices will therefore result in very large consumer savings, especially if the decreases persist over a period of years. Nor will the savings necessarily accrue only to users of crude products. It is not at all unlikely that prolongedly reduced crude product prices will compel suppliers of competitive energy sources and chemicals to reduce their own prices so

(9) Simpson, Nowlan and Rutledge, p. 3.
(10) Oil in Canada, XIV, No. 37, pp. 16-7.

as to avoid the loss of some or all of their markets. Altogether, consumer savings are certain to be very large. It is true that the turn of events contemplated here may be accompanied by expanded imports from the various low-cost crude-producing countries who, with the one exception of Venezuela, buy practically no Canadian goods. This will do nothing to mitigate Canada's trade deficit: nor will it enhance the exchange value of the Canadian dollar. But this is not inevitable. If events make world crude prices cost-determined, or nearly so, higher physical imports may not have higher monetary values than those of the present. The possibility, however, remains, and must be taken into account. Nevertheless, a weighing of the foregoing factors suggests that the probability is overwhelming that the net result for the Canadian community will be positive, and perhaps, very positive indeed.

Summation.

Given the present and foreseeable state of the world, and the justly renowned resourcefulness of oil cartelists, any attempt to discuss the future of the oil market, or any of its aspects, is fraught with more than the usual hazards. The analysis elaborated in these pages is therefore offered with some timorousness. This tentativity is induced not only by the subject's pronounced tendency to confound the experts--and the writer has no illusions as to his relative novicehood--but also by the alarming number of variables inherent in it. Some of these variables have been discussed here; their origins and natures reviewed, and where possible,

documented. And some of their effects on the shape of things to come have been suggested insofar as they are likely to affect Canadians. The substance of the argument may be epitomized as follows:

(1) With the sole exception of overland transport to Montreal refineries, Canada now possesses all the resources and facilities necessary to the attainment, and long-term preservation, of full self-sufficiency in the use of oil as an energy source.(11) There is otherwise little valid reason to fear that an oil shortage will impair her economic and military well-being; even if all external sources became unavailable abruptly, and even if the more extreme market contingencies considered here materialized.

(2) For many years, the cohesion of the international oil cartel successfully geared world crude prices to the highest-cost source. It thus rendered irrelevant to their interests as consumers the fact that Canadians were using large and increasing quantities of high-cost domestic crude. Recent developments have drastically altered this situation, and portend to alter it even more drastically in the years immediately ahead.

(3) There now exist solid reasons for anticipating that the world crude market in the 'sixties, and perhaps there-

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(11) The exception is an important one. Eastern Canada cannot do without oil, not even for a very short time. Happily, however, the likelihood of it being abruptly deprived of foreign oil as an isolated event is extremely remote. Should this happen, it will probably be but one aspect of a larger catastrophe, such as a full-scale world war, and in which case no *a priori* oil measures are likely to be efficacious in themselves. As a general precaution against less awful contingencies, it might make good sense for the federal and regional authorities to consider the creation of enough storage facilities in strategic places to stockpile crude in at least stop-gap quantities.

after, will be characterized by widespread price competition, with prices becoming increasingly cost-determined. Although it is possible that low-cost imports will intrude to displace some domestic production, this unprecedented mutation in the world market may well enable Canadians to meet their oil needs at lower consumer prices without vitiating Canada's prospects for self-sufficiency.

(4) The new situation will undoubtedly impel certain adjustments in Canada; some of them painful and far-reaching. On balance, however, the resultant social and economic benefits are very likely to exceed the costs.

(5) The present National Oil Policy may be seriously misdirected. It now tends to emphasize rather myopically and inflexibly the deemed need to treat oil as a currently scarce resource, and to encourage expanded domestic production above all else. Thus, it may hamper, if not preclude, the realization by Canadians of the potential gains that current and foreseeable global events seem to promise.(12)

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(12) It was implicitly assumed throughout this chapter that Canada's tariff policy on imported crude would not change during the period under review. At present, and for many years past, Canada has imposed only a nominal tariff on crude. There is no evidence, however, that a change has been suggested by any of the various interested parties, let alone contemplated by the federal government. Moreover, if the market contingencies anticipated here materialized, it is doubtful whether anything short of an escalator-type tariff, geared to unofficial as well as posted world prices, would be at all effective. Such a tariff would be not only unprecedented in Canadian experience, but probably administratively inoperable as well.

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