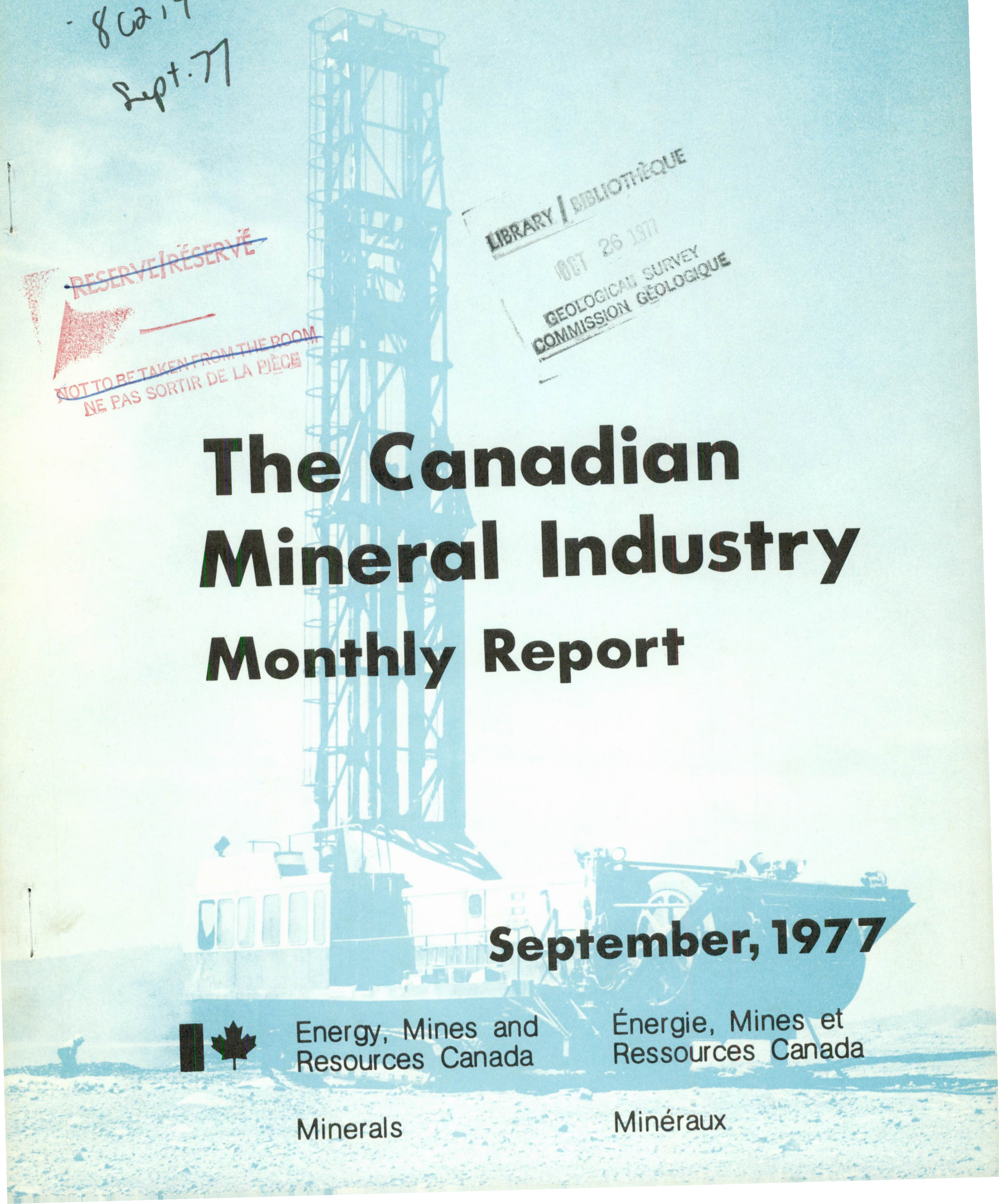

The Canadian Mineral Industry

Monthly Report

September, 1977

Energy, Mines and Resources Canada

Énergie, Mines et Ressources Canada

Minerals

Minéraux

PREFACE

This report is prepared in the Mineral Development Sector of the Department of Energy, Mines and Resources. It is prepared from the best information available to us from many sources, but it is only intended to be a general review of the more important current developments in the Canadian mineral industry and of developments elsewhere that affect, or may affect, the Canadian industry. It should not be considered an authority for exact quotation or an expression of official Government of Canada views.

Ce rapport a été rédigé par le Secteur de l'Exploitation Minérale du Ministère de l'Energie, des Mines et des Ressources. Bien que nous ayons eu recours à de nombreuses sources pour vous fournir les meilleurs renseignements possibles, cet exposé n'a pour objet que de passer en revue les développements actuels les plus importants de l'industrie minière canadienne, de même que les progrès accomplis ailleurs qui peuvent intéresser l'industrie canadienne. On ne doit pas considérer cet exposé comme une source de renseignements précis ou comme l'expression des vues du Gouvernement canadien.

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THE CANADIAN MINERAL INDUSTRY FOR SEPTEMBER

The following constitutes a brief summary of the Canadian mineral industry based upon information that became available in September.

SUMMARY

1. Canada's unadjusted index of Real Domestic Product was 123.3 in July 1977, a decrease of 4.5 per cent from June 1977.

2. The July index of Mines, Quarries and Oil Wells was 103.2, a decrease of 14.8 per cent from the previous month.

3. The Quebec government has established a $500,000 fund for mineral exploration in the northwestern Quebec and Chibougamau areas.

4. Alcan Aluminium Limited has received permission from the Anti-Inflation Board to increase the domestic price of mine products.

5. A number of further copper production cutbacks were announced in September.

6. The twenty-first session of The International Lead and Zinc Study Group was held in Geneva in September.

7. Inco Limited announced that production of electrolytic nickel at its Port Colborne refinery will cease in January.

8. Sidbec-Dosco Limited has purchased the Questeel mill of bankrupt QSP Ltd.

9. In September, Kaiser Resources Ltd. made two significant announcements that reflect the changing coal market conditions faced by Canadian mines.

10. In September, the United States and Canada formally signed the agreement to build a pipeline across the Yukon.

ECONOMIC TRENDS

Table 1 shows Canada's unadjusted indexes of Real Domestic Product in terms of 1971 = 100. The overall RDP index dropped 4.5 per cent in July compared with June 1977.

The July RDP index for mines, quarries and oil wells was 103.2, down 14.8 per cent from 121.1 in June. The metal mines, mineral fuels and nonmetal mines indexes fell by 11.2 per cent, 17.4 per cent and 27.2 per cent respectively during the month of July.

The July indexes for primary metal industries and nonmetallic mineral products industries were 15.7 per cent and 7.4 per cent below those of June.

Table 2 compares volume of production in major Canadian minerals. Output increased significantly in July compared with June for molybdenum (17.6 per cent) and silver (20.1 per cent). Output decreased significantly for nickel (16.2 per cent), uranium (32.0 per cent), lime (18.3 per cent) and crude oil (15.7 per cent).

Table 3 outlines man-days lost due to strikes and lockouts by major sectors for 1975, 1976 and January-June 1977. Total man-days lost for the first six months of 1977 was 1,686,800 compared with 4,521,700 for the corresponding period last year.

TABLE 1

Canada, Indexes of Real Domestic Product, by Industries Unadjusted (1971=100)

Industry or Industry Group	1976 June	1976 July	1976 Average 1st 7 Months	1977 June	1977 July	1977 Average 1st 7 Months	Percentage Changes: June 1977 / June 1976	July 1977 / July 1976	July 1977 / June 1977	1st 7 Months 1977 / 1976
Real Domestic Product	125.0	119.6	120.9	129.1	123.3	125.0	3.3	3.1	-4.5	3.4
Primary Industries										
Agriculture	4.5	28.0	62.6	5.5	41.2	59.4	22.2	47.1	649.1	-5.1
Forestry	90.2	116.0	93.2	116.9	118.7	110.1	29.6	2.3	1.5	18.2
Fishing and Trapping	140.7	217.7	93.7	164.8	233.8	93.4	17.1	7.4	41.9	-0.3
Mines, Quarries and Oil Wells	109.5	100.5	108.0	121.1	103.2	114.8	10.6	2.7	-14.8	6.3
Metal Mines	107.9	97.8	106.1	121.8	108.2	115.8	12.9	10.6	-11.2	9.1
Placer and Gold Quartz Mines	76.5	67.6	73.6	72.3	70.6	75.7	-5.5	4.4	-2.4	2.8
Iron Mines	152.3	127.9	127.1	153.7	140.6	133.6	0.9	9.9	-8.5	5.1
Other Metal Mines	98.5	91.9	102.6	116.3	102.0	113.4	18.1	11.0	-12.3	10.5
Mineral Fuels	111.4	102.0	110.0	117.5	97.1	112.9	5.5	-4.8	-17.4	2.6
Coal Mines	115.2	130.3	185.0	218.1	153.9	212.2	89.3	18.1	-29.4	14.7
Crude Petroleum and Natural Gas	111.1	99.7	103.9	109.3	92.5	104.8	-1.6	-7.2	-15.4	0.9
Nonmetal Mines	101.3	96.9	112.4	135.1	98.3	128.5	33.4	1.4	-27.2	14.3
Asbestos Mines	96.0	85.4	99.9	117.7	103.9	111.8	22.6	21.7	-11.7	11.9
Secondary Industries										
Manufacturing	126.7	111.7	119.2	131.0	115.8	122.6	3.4	3.7	-11.6	2.9
Nondurable Manufacturing	124.3	113.3	115.8	127.5	114.9	119.5	2.6	1.4	-9.9	3.3
Petroleum and Coal Products Industries	138.6	135.4	128.0	142.5	133.8	134.0	2.8	-1.2	-6.1	4.7
Durable Manufacturing	129.1	110.1	122.6	134.5	116.7	125.6	4.2	6.0	-13.2	2.5
Primary Metal Industries	108.7	90.8	108.0	122.0	102.8	113.5	12.2	13.2	-15.7	5.1
Iron and Steel Mills	130.4	105.6	117.7	133.6	109.7	122.4	2.5	3.9	-17.9	4.0
Steel Pipe and Tube Mills	135.6	79.4	125.3	135.2	89.3	121.2	-0.3	12.5	-33.9	-3.3
Iron Foundries	118.0	89.7	125.3	120.8	75.1	117.4	2.4	-16.3	-37.8	-6.3
Smelting and Refining	68.9	64.9	87.0	105.1	98.7	99.0	52.5	52.1	-6.1	13.8
Nonmetallic Mineral Products Industries	140.0	129.7	114.4	150.6	139.4	120.9	7.6	7.5	-7.4	5.6
Cement Manufacturers	154.3	146.7	111.3	164.3	153.9	110.8	6.5	4.9	-6.3	-0.4
Ready-mix Concrete Manufacturers	163.5	135.7	106.3	174.8	144.9	110.5	6.9	6.8	-17.1	4.0
Construction Industry	127.3	130.1	111.5	124.9	128.7	108.9	-1.9	-1.1	3.0	-2.3
Transportation, Storage, Communication	131.9	135.5	128.3	142.6	139.3	134.7	8.1	2.8	-2.3	5.0
Electric Power, Gas and Water Utilities	121.9	116.6	137.9	125.2	121.8	146.0	2.7	4.5	-2.7	5.8
Trade	144.8	130.3	127.7	141.1	130.7	129.2	-2.6	0.3	-7.4	1.2
Finance, Insurance, Real Estate	128.3	128.5	126.5	135.5	135.3	133.5	5.6	5.3	-0.1	5.5
Community, Business and Personal Service	130.2	121.8	126.6	135.1	125.9	132.4	3.8	3.4	-6.8	4.6
Public Administration and Defence	127.0	128.9	122.1	128.0	130.3	125.0	0.8	1.1	1.8	2.4

TABLE 2

Canada, Production of Leading Minerals
('000 tonnes except where noted)

		1976			1977			Percentage Changes		
		June	July	Total 1st 7 months	June	July	Total 1st 7 months	July 77 / July 76	July 77 / June 77	1st 7 months 1977 / 1976
Metals										
Copper		57.0	52.8	412.0	69.5	61.7	469.3	+16.9	-11.2	+13.9
Gold	kg	4 458.9	3 955.6	30 181.1	4 375.0	4 444.4	31 335.5	+12.4	+1.6	+3.8
Iron ore		6 417.2	6 593.9	28 716.1	6 029.1	5 328.9	25 488.8	-19.2	-11.6	-11.2
Lead		23.9	16.4	147.2	28.1	26.9	172.6	+64.0	-4.3	+17.3
Molybdenum	t	1 161.4	981.2	8 239.2	1 169.3	1 375.5	9 008.4	+40.2	+17.6	+9.3
Nickel		18.3	17.5	141.7	22.2	18.6	146.7	+6.3	-16.2	+3.5
Silver	t	112.1	82.8	758.0	108.4	130.2	830.1	+57.3	+20.1	+9.5
Uranium(1)	t	503.4	371.5	2 457.5	799.3	543.5	3 271.7	+46.3	-32.0	+33.1
Zinc		81.6	90.6	597.3	100.6	95.4	620.9	+5.3	-5.2	+4.0
Nonmetals										
Asbestos		126.4	105.3	856.6	130.0	116.7	848.0	+10.8	-10.2	-1.0
Gypsum		395.5	699.1	2 876.7r	735.0	650.8	3 659.8	-6.9	-11.5	+27.2
Potash K_2O		318.2	393.0	2 928.8r	443.7	464.2	3 390.7	+18.1	+4.6	+15.8
Salt		379.1	407.9	3 307.3	439.4	398.1	3 308.5	-2.4	-9.4	+0.1
Cement		1 159.2	1 031.2	5 303.0	1 199.9	1 053.1	5 361.7	+2.1	-12.2	+1.1
Clay products	$000	9,261.8	9,000.4	46,373.5	10,240.4	..	..	..	..	..
Lime		167.2	154.2	1 024.8	168.5	137.6	1 048.5	-10.8	-18.3	+2.3
Fuels										
Coal		1 314.2	1 577.9	13 672.9r	2 322.0	2 055.2	17 110.6	+30.3	-11.5	+25.1
Natural gas	000 m^3	6 724 487.3	6 534 934.3r	52 264 608.3r	6 733 860.2r	6 549 092.8	52 844 339.1	+0.2	-2.7	+1.1
Crude oil and equivalent	000 m^3	7 545.9	6 834.5r	47 664.7r	7 395.1r	6 236.4	47 630.4	-8.8	-15.7	-0.1

(1) Tonnes uranium (1 tonne U = 1.2999 short tons U_3O_8).

r Revised; .. Not available.

TABLE 3

Canada, Man-days Lost Due to Strikes and Lockouts, 1975-77

	1975	1976	January-June 1976	January-June 1977
Agriculture, forestry, fishing and trapping	290,820	36,670	9,080	64,440
Mines	1,179,380	579,430	275,630	75,660
Manufacturing	5,339,850	4,493,260	2,261,150	954,800
Construction[1]	984,920	2,856,370	50,810	112,840
Transportation and utilities	1,398,670	622,630	327,800	93,700
Trade	343,460	199,550	69,870	63,050
Finance	164,530	13,110	3,500	4,240
Service	752,530	1,298,490	821,590	233,890
Public administration	404,650	62,680	37,100	84,180
Other industries	50,000	1,447,700[2]	665,170	-
Total	10,908,810	11,609,890	4,521,700	1,686,800

[1] Includes the province-wide construction strike in Quebec in 1976. [2] Includes 830,000 man-days lost during the National Day of Protest.

\- Nil.

TAXATION AND LEGISLATION AFFECTING MINING AND ALLIED INDUSTRIES IN CANADA

Provincial

Alberta

The Crude Oil Par Price, Select Price and Royalty Factor Regulations, being A.R. 206/77 under the Mines and Minerals Act, establishes the par price of crude oil at $11.06 for July 1977 and subsequent months, and the royalty factors for July 1977 and subsequent months is

(1) 1.5701 with respect to crude oil other than new oil, and

(2) 0.6262 with respect to new oil.

British Columbia

Reverted Crown-granted Mineral Claims, B.C. Reg. 290/77 under the Mineral Act, repeals the existing regulations. The new regulation rewrites the former regulation as amended and converts to the metric system of measurement.

British Columbia Payment to Canada of Federal Income Tax on Behalf of Natural Gas Producers Act, being S.B.C. 1975, c. 8, is repealed effective December 31, 1976. Notwithstanding the repeal, the Act continues in effect and regulations may be made under Section 30 with respect to any proceeding commenced or in progress prior to the repeal.

Foreign

United States of America

Wisconsin

Governor Lucey of Wisconsin recently signed the controversial mining taxation bill. The new law imposes a graduated tax on net proceeds of companies mining metalliferous minerals, as follows:

up to			$ 100,000	exempt
over	$ 100,000	up to	4,000,000	6 per cent
over	4,000,000	up to	10,000,000	12 per cent
over	10,000,000	up to	20,000,000	16 per cent
over	20,000,000	up to	30,000,000	18 per cent
over	30,000,000			20 per cent

Revenues from this tax will be divided among the state and districts where the mines are operating.

PROVINCIAL MINERAL AGREEMENTS

Quebec

The Quebec Department of Natural Resources has created, on an experimental basis, a $500,000 Mineral Development Fund to allow for governmental participation in mineral exploration in the northwestern Quebec and Chibougamau areas.

In order to be eligible a firm must:

- have its main registered place of business in Quebec
- submit the required documentation
- have its application certified by a mining engineer or a geologist
- have the mineral rights on the property for which the application is made

The government participation in the financing of an exploration program will amount to 50 per cent of total costs and conditions will be set in a formal agreement. At the expiry of an agreement, the government will be entitled to a given interest in the property.

METALLIC MINERALS AND PRODUCTS

Aluminum

The Anti-Inflation Board announced that Alcan Aluminium Limited will be allowed to increase the domestic price of nine products by an average of 2.6 per cent. The company had notified the Board of a proposed increase in aluminum ingots of two cents a pound, to enable it to return to its traditional price relationship with the United States where the ingot price was raised 2 cents to 53 cents a pound on July 1. The Board did not intervene in the price of ingot but ruled that increases in five product lines must be limited to amounts that reflect the two cents a pound increase in ingot prices.

Trinidad and Tobago have obtained a $150 million loan from a 21-bank syndicate to assist in the financing of primary aluminum, steel and fertilizer projects. Trinidad and Tobago originally planned to build a 120 000 tonne a year aluminum smelter in partnership with Jamaica and Guyana, but the two partners withdrew from the project late in 1976. Trinidad and Tobago decided to proceed with an aluminum smelting project of its own, scaled down to 68 000 tonnes a year. The project will be based on Trinidad's substantial natural gas and oil reserves and the alumina will probably be obtained from Jamaica or Guyana.

Sumikei Aluminum of Japan has completed the second 40 800 tonne stage of its Sakata smelter and plans to start trial production next month. The overall operating rate is expected to be 71 per cent by year-end.

The Bureau of Land Management of the Department of the Interior has issued a favourable final Environmental Impact Statement for the Alumet Partnership's proposed alunite-alumina project in Utah. The Alumet Group, with consists of National Steel Corporation, Southwire Aluminum Company and Earth Sciences Incorporated, proposes to construct a 450 000 tonne-a-year alumina plant using alunite as its raw material. The project will also have facilities to produce 335 000 tonnes of potassium sulphate and up to 1.5 million tonnes of triple-superphosphate. Alumet is currently seeking partners for the project estimated to cost over $500 million.

Copper

During September, North American producer prices for copper remained unchanged. Prices for electrolytic wirebars and for cathode were 65.125 and 64.5 cents a pound in Canada and 60.625 and 60.00 cents a pound in the United States.

London Metal Exchange (LME) prices rose somewhat during the month. At month-end, the cash price for electrolytic wirebars was 54.7 (U.S.) cents a pound compared with 52 (U.S.) a pound at the end of August. LME and Comex stocks recorded a further net advance during September. At month-end, LME stocks were 616 925 tonnes and Comex stocks were 181 522 tonnes.

The persistent gap between LME and Comex prices on the one hand, and U.S. producer prices on the other, has created pressure from consumers in the United States for concessions in sales terms from U.S. producers. This, coupled with rising imports of copper into the United States, is threatening to undermine the producer price structure. At the end of September, Cities Service Company was reported to be discussing possible changes in its pricing system. It is believed that one of the options discussed would allow customers to price part of their requirements at a commodity exchange price.

In Canada, major financing has been arranged to bring the Sam Goosly silver-copper property into production. The orebody is located near Houston, British Columbia. The project would produce 4 200 tonnes of ore a day and would have an estimated capital cost of $60 million. Construction could begin in 1978.

As the period of depressed copper industry conditions extends, government assistance for the industry is increasingly being sought in those countries where private ownership of the industry still exists. In September, United States producers are reported to have met with senior government officials to ask that government stockpiling be started immediately as a means to reduce producer inventories.

A further protectionist bill calling for higher copper import tariffs was introduced into the United States Congress during September. Bill S 2124 would double at present duty rates on copper. It would also raise the "trigger-point" price below which higher tariffs would come into effect.

In Japan, the Metallic Minerals Stockpiling Association said it plans to buy 100 000 tonnes of zinc and 20 000 tonnes of copper from nine Japanese smelters in the next six months, subject to government approval. This follows the release of Japanese producer stocks figures for July which showed a 27 000 tonne increase in stocks relative to June.

A number of further copper production cutbacks were announced in the United States in September:

- Hecla Mining Company closed the Lakeshore Mine during the period September 4 - October 31, 1977.

- ASARCO Incorporated, whose local unions completed ratification of a new three-year labour agreement early in September kept its Mission and Silver Bell copper mines closed due to excessive stocks of copper concentrates.

- Phelps Dodge Corporation resumed production at its Morenci and Metcalf, Arizona mines at a reduced rate following the strike which began on July 1. These mines will operate on a 5 day-a-week basis compared with their former $5\frac{1}{2}$ day-a-week rate.

Gold

The International Monetary Fund (IMF) held its thirteenth gold auction on September 7 under the open price method and awarded 524,800 troy ounces of gold to successful bidders at prices ranging from $147.61 (U.S.) an ounce to $149.65 (U.S.) an ounce with an average of $147.78 (U.S.). At the twelfth gold auction 524,800 ounces of gold were awarded to successful bidders at a common price of $146.26 (U.S.) an ounce. The afternoon fixing price on the London Gold Market on September 6 was $147.30 (U.S.) an ounce, slightly below the average of bid prices. The gold price remained near the average bid price for the first part of the month. In all, 112 final bids were submitted for a total of 1,084,400 ounces of gold compared with 136 final bids for a total of 1,439,200 ounces at the twelfth auction. Over 77 per cent of the bids submitted were in the price range of $146.00 to $147.99 (U.S.) an ounce of gold. A total of 21 bids submitted by 11 bidders, mainly international bullion dealers and European banks, were accepted. Final bids were submitted by 15 bidders. The fourteenth IMF gold auction will be held on October 5 in which 525,000 ounces of gold will be offered for sale under the open bid price method.

The gold price increased progressively during the month of September 1977, the monthly low of $145.42½ (U.S.) an ounce of gold being recorded on September 1 at the afternoon fixing on the London Gold Market and the high of $154.05 (U.S.) an ounce at the afternoon fixing on September 30. Reportedly an increase in demand for gold by the jewellery trade and for investment and speculative purposes were largely responsible for the marked improvement in the gold price. The monthly average of the afternoon fixing gold price on the London Gold Market was $149.52 (U.S.) ($160.48 Cdn) an ounce of gold compared with $144.95 (U.S.) ($155.82 Cdn) an ounce for August.

Lead

Cominco Ltd. announced a $22 million project as part of the modernization program at its Trail, British Columbia lead-zinc metallurgical complex. Construction will begin in October on a new feed preparation plant for the lead smelter. The new plant which will be completed in 1979 will replace an existing structure where concentrates are received, unloaded, stored and blended prior to processing in the sinter plant.

In the United States, a United Steelworkers of America local, ratified a three-year labour contract with the Bunker Hill Company at its Kellogg, Idaho lead plant. The workers who have been on strike since May 5, returned to work on September 26. The plant (with a capacity of 118 000 tonnes a year) should be operating at full capacity by the second week of October. Management had operated the plant at 75 per cent of capacity during the four month strike. As well, in the United States, a wildcat strike at ASARCO Incorporated's East Helena, Montana lead smelter on September 27, has forced the company to declare a *force majeure* on lead concentrate shipments to the plant. Lead bullion produced at East Helena is refined at the company's Omaha, Nebraska refinery and there were no plans, as of the end of the month, to declare a *force majeure* on refined lead. The East Helena plant produces about 60 000 tonnes of bullion annually.

The twenty-first session of the International Lead Zinc Study Group was held in Geneva from September 6 to 17. Estimates for world lead mine production, metal production and consumption in 1977 are 2.54 million tonnes, 3.64 million tonnes and 3.70 million tonnes respectively. When net trade with socialist countries and net changes in government stockpiles are taken into consideration, the balance for 1977 shows a deficit (or draw-down of stocks) of 108 000 tonnes. The forecast for 1978 shows mine production of 2.66 million tonnes, metal production of 3.86 million tonnes and consumption of 3.74 million tonnes. With trade and stockpile considerations added, the forecast is for a surplus of 84 000 tonnes of metal in 1978. This increase would still not bring stocks up to normal levels. However, many observers doubt the ability of the secondary sector to bridge the gap between forecast mine supply and metal consumption; in addition, as long as zinc markets remain weak, any reductions in zinc mine supply are likely to reduce the lead supply as well.

The producer price of lead in North America remained unchanged during the month at 32.25 cents a pound in Canada and 31 cents a pound in the United States. The London Metal Exchange (LME) spot price gained £12 a tonne during the month to close at £338.5 a tonne (26.8 U.S. cents a pound) on September 30. This represents a one cent increase during the month. LME stocks declined from 63 925 tonnes to 62 125 tonnes at month-end, the lowest month-end level since July 1975. Producer stocks continued to decline in the United States and at the end of August totalled 11 440 tonnes (430 tonnes below the July total).

Nickel

On September 8, Inco Limited announced that as of January 30, 1978 the production of electrolytic nickel will be discontinued at its Port Colborne refinery. The cutback will eliminate about 375 jobs at the plant. No lay-offs will take place before January 30 and the company expects that most of the reduction in employment will be effected through voluntary retirements, a special voluntary separation program and voluntary transfers to other Inco plants. Last July, the company stated that it would not replace all employees in Canada lost through normal attrition in a move to reduce output of nickel in all forms. The Port Colborne refinery will continue to produce S nickel rounds for the plating industry and will add two new Class II nickel products, utility short and pig, to its Port Colborne product line.

The Langmuir nickel mine in the Timmins area, owned 55 per cent by Noranda Mines Limited and 45 per cent by Inco has cut 35 employees from its workforce of 150 because of the oversupply in the nickel industry.

The Shell Group is becoming involved in nickel. Billiton, a Shell subsidiary, is negotiating with The Hanna Mining Company on participation in the Cerro Matoso nickel project in Columbia. In August, the Shell Group successfully bid for the 50 per cent interest previously held by Poseidon N.L. in the Windarra operation in Western Australia. Half of the Windarra output is committed until 1979 by an outstanding contract to Sherritt Gordon Mines Limited refinery at Fort Saskatchewan, Alberta.

Steel

Sidbec-Dosco Limited has purchased the Questeel mini-mill of bankrupt QSP Ltd. at a creditors auction for $27.1 million. The plant located at Longueuil, Quebec was closed in early June when the Royal Bank of Canada foreclosed on its loans to the company. Questeel with a raw steel capacity of 300,000 tons per year and rolling mill capacity of 275,000 tons per year had only been in operation since 1974. Large capital costs associated with its development coupled with a market deterioration for its steel products, led to the severe financial difficulties which caused its closing.

The Algoma Steel Corporation, Limited of Sault Ste. Marie announced that it was suspending operations of one of its blast furnaces. The action was taken because of the general poor demand for some of Algoma's steel products and the buildup of inventories. Earlier in the year, Algoma suspended operations of its Canadian Furnace Division at Port Colborne citing excess ironmaking capacity.

The International Iron and Steel Institute (IISI) has indicated that it does not expect any change in the short term outlook for steel in the western world. The general economic situation shows only marginal signs of improvement in some countries with investment in heavy capital goods and structural materials remaining poor in most industrialized countries. Until increased activity takes place, the steel industry of most countries will continue to operate at depressed levels of capacity.

Zinc

The twenty-first session of the International Lead and Zinc Study Group which convened in Geneva during September 1977 devoted nearly all its attention to zinc because of the poor state of the world zinc industry. During the session, it became obvious that the production plans by member countries were incompatible with forecasts of demand, and accordingly most governments in consultation with their industry reduced output levels for 1978. On a collective basis, metal production next year will be equivalent to about 76 per cent of capacity. Revised forecasts for Canada and the Western World are as follows:

	1976	1977	1978
		(thousand tonnes)	
Canada			
Mine production (zinc content)	1 158	1 309	1 270
Primary metal production	472	506	479
Primary metal consumption	119	125	129
Western World			
Mine production (zinc content)	4 483	4 903	5 221
Primary metal production	4 110	4 223	4 330
Primary metal consumption	4 225	4 284	4 390

The tables for zinc when adjusted for east-west trade and changes in non-commercial stockpiles indicate a modest reduction of 72 000 tonnes in world zinc metal stocks in 1977 and 2 000 tonnes in 1978; however, the reduction is subject, in part, to a decision by the Government of Japan to stockpile 80 000 tonnes of zinc during this period, which is not yet confirmed. Either way, there does not appear to be any significant improvement in the level of world metal stocks which are estimated to be about 1.0 to 1.2 million tonnes as of mid-1977 and of which about one-half are deemed surplus to normal working levels. The tables do not provide a statistical balance of supply and demand for concentrates which is regrettable because of the very large apparent surplus of production shown for 1977 and 1978. On the basis that;

- roughly 120 000 tonnes of zinc-in-concentrates are exported annually to Sino-Soviet countries, and

- a six per cent deduction is taken from mine production to account for smelter and other losses then a surplus of mine production over metal production would amount to roughly 270 000 tonnes in 1977 with a further 440 000 tonnes in 1978. The forecast cumulative surplus of 710 000 tonnes by year-end 1978 may well be too high but its magnitude is sufficient to warrant the conviction that many producers will be faced with the decision to either reduce production or stockpile next year. The burden for such decisions tends to fall upon exporting nations and as Canada is the largest supplier to world zinc markets, accounting for about 40 per cent of world trade, many if not most, of our domestic mine producers are likely to be affected.

Weak zinc markets have caused Brunswick Mining and Smelting Corporation Limited to announce a delay in its expansion program at the No. 12 mine near Bathurst, New Brunswick. The $53 million expansion project was to have been completed in 1979 with capacity at the No. 12 mine being raised to 9 900 tonnes a day. This goal will not be reached until 1980 at the earliest and mining operations in the interim at the No. 6 and No. 12 mines will be kept at a level of 6 800 tonnes a day (present capacity is 8 500 tonnes a day for the two mines combined). Capital expenditures on the project as of June 1977 totalled $33.6 million.

Subsequent to the meeting of the Study Group, Japan's Metallic Minerals Stockpiling Association said it plans to purchase 100 000 tonnes of zinc and 20 000 tonnes of copper over the next six months (subject to government approval). The Association would require about 30 billion yen to accomplish its plans and the stocks purchased would be frozen for three years unless metal prices increased sharply to permit sales.

Zinc price levels quoted by producers remained unchanged from August at $700 (U.S.) a tonne overseas, $749.56 (U.S.) a tonne in the United States, and $728.63 (Cdn) a tonne in Canada. The London Metal Exchange closed the month of September at $501.70 (U.S.) compared to $533.30 (U.S.) at the end of August.

INDUSTRIAL MINERALS AND PRODUCTS

Asbestos

The Sorès Phase I study examining opportunities for further processing of asbestos fibre in Quebec was released on September 1, 1977. Fourteen products falling into the textile, paper, asbestos-cement, friction materials and filler groups were evaluated.

Five products of the fourteen were selected for a detailed analysis of opportunities which will be reviewed in a Phase II study to be released near the end of 1977. These selected products are: molded friction material, asbestos-cement pipe, asbestos-cement finished sheets, flooring felts and papers. Based on the selection process, Sorès states that the five products are those most amenable to being profitably produced in Quebec and sold to a domestic and/or foreign market.

In September, a five-member delegation consisting of senior planning and mine operating officials from Russia visited Canadian-Johns Manville Company, Limited, Lake Asbestos of Quebec, Ltd., Bell Asbestos Mines, Ltd., Cassiar Asbestos Corporation Limited and SNC Limited, Montreal.

The Russians were primarily interested in mine planning and ore handling, improvements in milling technology, automatic controls and fibre quality control.

An exchange visit to Moscow and the major asbestos mining regions in the Central and Southern Urals is planned for late October 1977, by senior officials of the Canadian asbestos mining industry and representatives from the Departments of Industry, Trade and Commerce and Energy, Mines and Resources. The purpose of the exchange visit will be to obtain first-hand information regarding Soviet ore handling methods, milling and environmental control technology and production and export plans for the next 5-year period. Expansions during the last 5-year plan resulted in USSR production surpassing the level in Canada.

The Russians stated that more importance has recently been attached to the use of asbestos for construction materials in the USSR and in the COMECON countries which are becoming more economically integrated.

Bentonite

Avonlea Mineral Industries Ltd. plans to produce Saskatchewan bentonite for iron-ore pelletizing and as a binder material used by foundries. A new plant in Regina is under construction to process the raw material situated near Avonlea, 30 miles southwest of Regina. Proven reserves are reported to be approximately 1.4 million tonnes included in three flat-lying beds near the surface. Plant construction will be assisted by a $353,168 Federal Department of Regional Economic Expansion incentive offer and financing through a loan from the Saskatchewan Economic Development Corporation.

Plant capacity is expected to be about 54 000 tonnes a year. Output from the plant is expected to partially replace the 200 000 tonnes of bentonite that are imported each year by iron-ore pelletizing companies.

MINERAL FUELS AND PRODUCTS

Coal

In early September, the Alberta Resources Conservation Board recommended for Cabinet approval a $500 million thermal power generating plant proposed by Calgary Power Ltd. of Calgary. If approved by the Alberta Government the Keephills thermal station could be completed by 1982-83 provided construction begins within the next year. The 750 megawatt plant would be located about six miles southeast of Calgary Power's existing Sundance plant near Edmonton and would supply some of the power that was to have come from the proposed 2,200 megawatt Dodds-Roundhill development, cancelled by the Alberta Government in 1976. The Keephills plant would require about 3.5 million tons of coal annually.

Kaiser Resources Ltd. of Vancouver made two significant announcements during September that reflect the changing coal market conditions faced by Canadian mines. Towards the end of the month, Kaiser announced an amendment to an existing contract and the completion of two new contracts totalling 2.75 million long tons of additional coal sales. The amended contract with Pohang Iron and Steel Co. of South Korea increased its contract purchases from 3.7 million long tons to 6.0 million long tons over the next eight years. While 1977 shipments will remain unchanged at 350,000 long tons, yearly shipments will increase to more than a million tons by 1982. The two new contracts, with the Usiminas and Companhia Siderurgica Nacional de Brazil steel mills, are for purchases totalling up to 413 000 tonnes over a three year period. Shipments are to commence later this year and will total 160 000 tonnes in this first shipping season. Both contracts represent expansion into relatively new market areas for Canadian coals.

The other major Kaiser announcement, made September 1, delayed the plans to develop the proposed Hosmer-Wheeler hydraulic coal mine near the existing Kaiser operation in southeastern British Columbia. The main potential customers (Japanese steel mills) decided not to enter into long-term contracts at this time because of reduced steel production. However, studies of the commercial feasibility of this project are continuing based on marketing this coal to other customers.

Norcen Energy Resources Limited of Toronto has announced that discussions are underway with Loram Co. of Calgary concerning the possible reorganization of Coleman Collieries Limited. Coleman Collieries is a coal mining company with mines in the Crowsnest Pass area of Alberta and British Columbia. In 1976, Coleman produced over 1.5 million short tons of coal and marketed over 1 million tons to the Japanese steel industry. In recent negotiations, Coleman reached an agreement on price and volume modifications to its original 15 years agreement with its major overseas customers.

An economic symposium held in Vancouver, British Columbia in early September heard guarded but optimistic projections for B.C.'s coal industry in the next decade. Coal industry executives saw the current stable sales levels giving way to increased sales by the early to middle 1980s. A recovery of the western world's economy and a diversification into new export markets were seen as necessary ingredients to renewed growth in the coking coal export sector of B.C.'s coal industry. Growth potential in the thermal sector was related to possible development of the central B.C. Hat Creek deposits for a large scale thermal electric generating plant and further developments of thermal coals from the East Kootenays for Ontario Hydro and other markets.

Petroleum and Natural Gas

In September, the United States and Canada formally signed an agreement to build a pipeline across the Yukon Territory to transport Alaskan gas to United States markets. This is the largest single, privately financed project in history and will be built by Alcan Pipeline Co., Northwest Pipeline Corporation and several other Canadian companies. The 4,800-mile line is expected to go on stream in early 1983.

Husky Oil Ltd. has announced a proposal for the construction of a 100,000 b/d heavy crude oil upgrading facility to be located in Lloydminster, Alberta. The plant is designed to upgrade heavy crude oils from Lloydminster, Cold Lake and possibly other locations to an oil which can be readily processed in all existing Canadian refineries without additional capital costs or modifications. The estimated cost of the planned facility, excluding pipelines and offsite requirements, is $520 million. It will be owned and developed by a new Canadian corporation to be comprised of Canadian investors, producers, refiners and companies. The plant will be co-ordinated, managed and constructed by the consortium headed by Husky.

At the end of June 1977, construction of the $2.15 billion Syncrude Canada Ltd. Athabasca Tar Sands project was 86 per cent complete and on schedule for its mid-1978 start-up. In addition to plant construction, the 260-megawatt utility plant which will provide power for the project, is 79 per cent complete and should be finished about the end of this year.

Dome Petroleum Limited has received permission from the federal government to continue drilling at its Nektoralik K59 well, one of three wells Dome commenced drilling this summer in the Beaufort Sea. According to federal drilling regulations, all drilling in the Beaufort Sea must cease before September 25 in the interest of environmental safety. All three wells being drilled by Dome had encountered encouraging gas shows but only the Nektoralik well was granted the drilling extension. The other two wells were suspended and will have to be completed during the 1978 drilling season. The rationale in allowing drilling to continue at the Nektoralik location was that the well was more advanced than the others and has apparently located a large gas bearing reservoir. It was anticipated that the extension would permit a more complete evaluation of this zone before ice conditions terminate the short drilling season in the Beaufort Sea. In any event, the well will have to be re-entered next year and deepened before final evaluation.

Shell Canada Resources Limited, Shell Explorer Limited and the Alberta Oil Sands Technology and Research Authority (AOSTRA), have agreed to carry out an experimental pilot project to test a new process developed by Shell to recover bitumen from the Peace River oil sand deposits. Shell Canada Resources and Shell Explorer each have a 25 per cent participating interest in the pilot project with the Alberta government agency holding the remaining 50 per cent interest. The pilot project will be designed to recover up to a peak of 3,500 b/d of bitumen. The total operating and capital costs over the life of the project could amount to as much as $150 million. The plant is scheduled for completion in 1979.

Uranium

Uranerz Exploration and Mining Limited revealed to the Cluff Lake Board of Inquiry (see February issue) that its explorations in the Key Lake area thus far indicate that its Gaertner deposit had reserves estimated to amount to 45 million pounds U_3O_8 and the nearby Dielman deposit holds in excess of 13 million pounds U_3O_8. The plans, which must be approved by both federal and provincial authorities, call for production to begin by 1983. Mining will be carried out by open pit methods and output is expected to reach six million pounds U_3O_8 annually. Uranerz is the operator of the project which is held in equal proportion by Uranerz, Inexco Mining Company and the Saskatchewan Mining Development Corporation (SMDC).

Gulf Minerals Canada Limited in joint venture with Noranda Exploration Company, Limited and SMDC has discovered uranium in its West Bear property in the Athabasca sandstone formation some 25 miles southwest of the Gulf-Uranerz Rabbit Lake mine. Although some good values have been found only limited drilling has been carried out on the discovery. Since this year's drilling program will soon be completed any meaningful assessment will have to wait additional drilling in 1978.

In British Columbia, another uranium discovery has been made in the general Beaverdell region. Norcen Energy Resources Limited is in joint venture with Campbell Chibougamau Mines Ltd. and E & B Explorations Ltd. on the Blizzard property, Lassie Lake area, which was optioned from Lacana Mining Corporation. Of 33 holes drilled thus far, 26 have intersected uranium mineralization. It will be recalled that the Beaverdell area became attractive for uranium exploration following discoveries first made in 1968 by the Japanese firm Power Reactor and Nuclear Fuel Development Corp.

Mexican uranium production is to be increased by Mexico's National Nuclear Energy Institute (INEN) principally through the construction of a new 3 000 tonne a day mill at the Las Margaritas mine near Aldama, Chihuahua. INEN expects to produce some 800 to 1 000 tonnes of U_3O_8 a year.

External Affairs Minister D. Jamieson and Swedish Foreign Affairs Minister K. Soder signed a new nuclear co-operation agreement covering the movement of uranium and of nuclear technology. The agreement is in line with the strict new safeguards announced by Mr. Jamieson last December. Under the agreement uranium deliveries from Canada that had been held up can now proceed.

RECENT AMALGAMATIONS AND MERGERS PUBLISHED IN THE GAZETTES

B.A.C.M. Limited amalgamated with BACM Industries Limited into a new company under the name of B.A.C.M. Industries Limited on June 30, 1977. Source Manitoba Gazette, August 6, 1977.

Nymar Mining & Reduction Limited amalgamated with Dynasearch Exploration Ltd. into a new company under the name of Dynamar Energy Limited on August 8, 1977. Source Alberta Gazette, August 31, 1977.

100206 Oil & Gas Ltd. amalgamated with Brazeau Petroleums Limited into a new company under the name of South Brazeau Petroleums Limited on August 4, 1977. Source Alberta Gazette, August 31, 1977.

Whistler Petroleums Limited amalgamated with Ratel Resources Limited into a new company under the name of Whistler Petroleums Limited on August 2, 1977. Source Alberta Gazette, August 31, 1977.

Notice has been given of merging Cottonco, Inc. into Cotton Petroleum Corporation on May 5, 1977. Source Alberta Gazette, August 31, 1977.

Notice has been given merging A A Minerals Corp. into Supron Energy Corporation on July 19, 1977. Source Alberta Gazette, August 31, 1977.

NEW PUBLICATIONS

The following publications were prepared in the Mineral Development Sector, Department of Energy, Mines and Resources and released for distribution in September.

Mineral Policy Series:

MR 151F	Le Gypse
MR 158F	Tendances et Perspectives Economiques Dans L'Industrie Minerale
MR 161	Minerals, Science and Technology

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MR 172	Canadian Iron Ore Industry Statistics 1975-1976 by Michel Boucher
MR 173	Quantitative Impact of Minerals on Canadian Economic Development: A Partial Analysis by D.J. McCulla and J.E. Stahl
MR 174	Canadian Reserves of Copper, Nickel, Lead, Zinc, Molybdenum, Silver, and Gold as of January 1, 1976 by J.A. McIntosh and D.A. Cranstone

The preceding publications are available from the Publishing Center, Department of Supply and Services, Ottawa, for $2.00 a copy.

Environmental Protection and Mineral Management Dilemmas in the Sudbury Area - a study by J. Lajzerowicz and R.M. Woodbridge, available free of charge from the Mineral Development Sector Publication Office, Department of Energy, Mines and Resources.

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Map 900A (Twenty-seventh Edition), *Principal Mineral Areas of Canada,* 1977, Scale 1:7, (Available in English or French), price $1.00 from the Department of Energy, Mines and Resources.

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Preprints, *Canadian Minerals Yearbook 1976* Cement, Lead - 50¢ a copy, Supply and Services Canada.

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