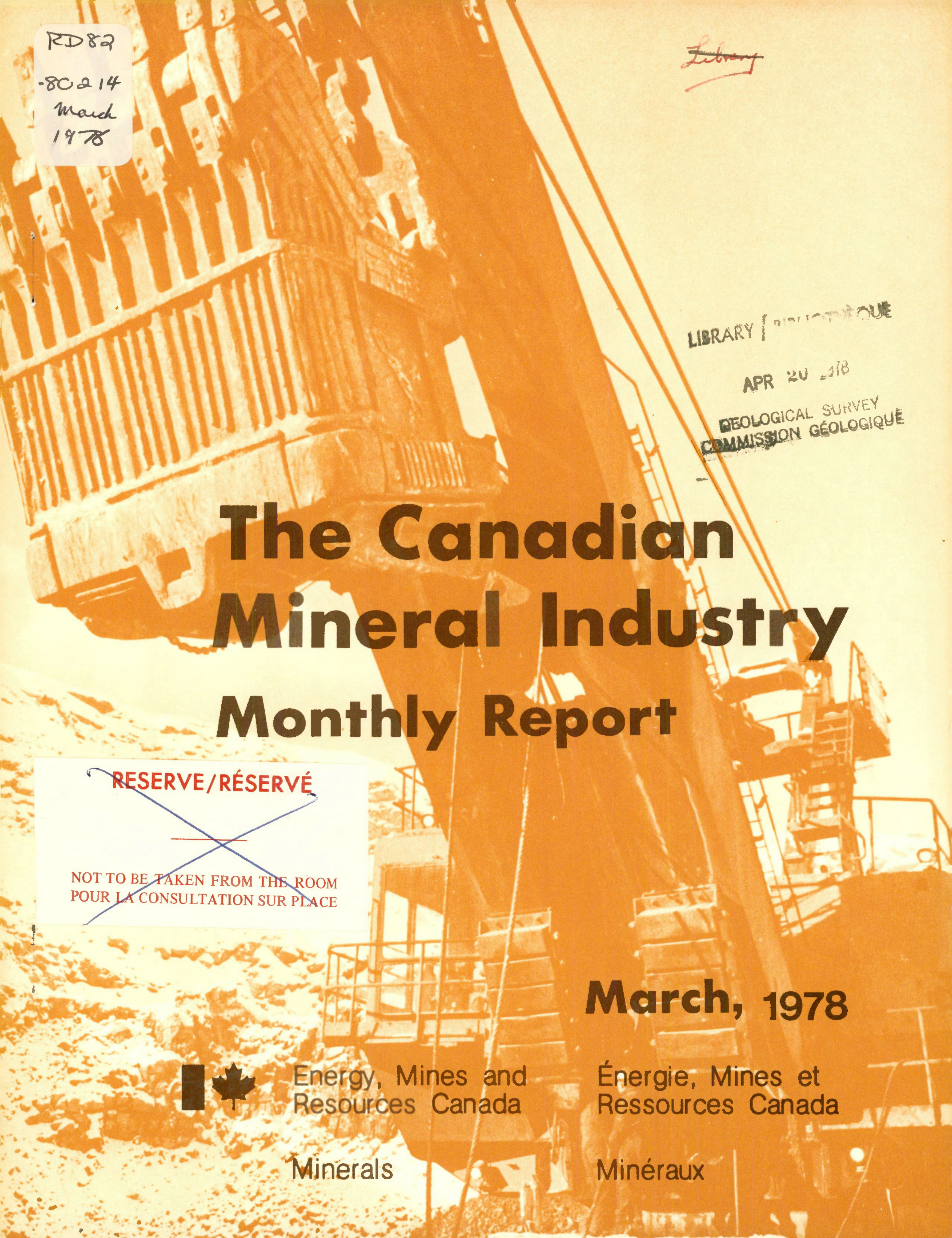

The Canadian Mineral Industry

Monthly Report

March, 1978

Energy, Mines and Resources Canada

Énergie, Mines et Ressources Canada

Minerals

Minéraux

PREFACE

This report is prepared in the Mineral Policy 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 la Politique 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 MARCH

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

SUMMARY

1. Canada's unadjusted index of Real Domestic Product was 120.0 in January 1977, a decrease of 5.7 per cent from December 1977.

2. The January index of Mines, Quarries and Oil Wells was 103.1,a decrease of 10.5 per cent from the previous month.

3. Bill 29, The Mining Tax Amendment Act, 1978, was introduced, and received first reading in the Ontario Legislature on March 7.

4. Copper prices rose substantially during March.

5. Inco Limited and Falconbridge Nickel Mines Limited increased the price of their nickel products to take effect April 1.

6. An "anti-asbestos lobby" is underway in the EEC countries.

7. Underground barite operations by Dresser Minerals,a Division of Dresser Industries Inc. in Nova Scotia were discontinued as a result of flooding.

8. Canadian Gypsum Company, Limited has agreed to sell its Guelph dolomite lime plant to Guelph Dolime Ltd.

9. Kaiser Resources Ltd. of Vancouver announced an agreement for long-term sale of coking coal to Romania.

10. Denison Mines Limited has agreed to purchase all the interests in certain uranium-nickel properties held by Inexco Mining Company (Canada) Ltd.

ECONOMIC TRENDS

Table 1 shows Canada's unadjusted indexes of Real Domestic Product (RDP). The overall index in January was 120.0, a decrease of 5.7 per cent from December and a modest increase of 1.1 per cent over January of 1977.

The RDP index for mines, quarries and oil wells was 103.1, down 10.5 per cent from December. The metal mines index decreased in January by 9.5 per cent to 95.4. Iron Mines showed a decrease of 26.7 per cent for the same period. The mineral fuels index for January was 110.9, down 14.6 per cent over December, and non-metal mines was 117.5, a decrease of 1.9 per cent. The largest increase for the period was recorded in Iron and Steel Mills at 117.1, a 13.4 per cent change from the previous month.

Table 2 compares volume of Canadian production in nineteen major minerals. Output fell in January for all minerals except molybdenum which showed an increase of 11.8 per cent and potash, an increase of 32.6 per cent over that of December. The largest decrease was exhibited in iron ore, a 63.0 per cent decrease in January,from the previous month.

Table 3 shows Canada's exports of crude and fabricated minerals for 1975, 1976 and 1977. Crude minerals in 1977, comprised 64.1 per cent of total mineral exports and 19.4 per cent of exports of all products.

TABLE 1

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

Industry or Industry Group	1976 Dec	1977 Jan	1977 Dec	1978 Jan	Percentage Changes: Jan 1978 / Jan 1977	Percentage Changes: Jan 1978 / Dec 1977
Real Domestic Product	124.2	118.7	127.3	120.0	1.1	-5.7
Primary Industries						
Agriculture	29.4	37.7	40.0	39.4	4.5	-1.5
Forestry	124.4	102.7	126.6	90.2	-12.2	-28.8
Fishing and Trapping	58.4	19.3	77.7	35.1	81.9	-54.8
Mines, Quarries and Oil Wells	114.1	113.2	115.2	103.1	-8.9	-10.5
Metal Mines	102.9	111.5	105.4	95.4	-14.4	-9.5
Placer and Gold Quartz Mines	79.2	75.7	71.9	69.3	-8.5	-3.6
Iron Mines	133.2	108.3	146.2	107.2	-1.0	-26.7
Other Metal Mines	96.6	114.1	97.0	93.8	-17.8	-3.3
Mineral Fuels	127.1	116.1	129.8	110.9	-4.5	-14.6
Coal Mines	207.8	222.9	188.0	182.6	-18.1	-2.9
Crude Petroleum and Natural Gas	120.5	107.4	125.0	105.0	-2.2	-16.0
Nonmetal Mines	128.5	132.1	119.8	117.5	-11.1	-1.9
Asbestos Mines	107.1	111.6	85.5	80.6	-27.8	-5.7
Secondary Industries						
Manufacturing	116.2	115.9	119.4	115.7	-0.2	-3.1
Nondurable Manufacturing	114.6	112.1	117.4	112.0	-0.1	-4.6
Petroleum and Coal Products Industries	137.2	137.6	137.0	135.7	-1.4	-0.9
Durable Manufacturing	117.8	119.8	121.5	119.4	-0.3	-1.7
Primary Metal Industries	98.2	109.6	103.9	111.5	1.7	7.3
Iron and Steel Mills	104.3	118.6	103.3	117.1	-1.3	13.4
Steel Pipe and Tube Mills	120.3	122.1	106.8	116.4	-4.7	9.0
Iron Foundries	103.0	125.5	103.0	115.3	-8.1	11.9
Smelting and Refining	81.7	91.3	101.2	101.4	11.1	0.2
Nonmetallic Mineral Products Industries	101.8	89.0	109.4	92.4	3.8	-15.5
Cement Manufacturers	90.2	57.5	82.4	53.0	-7.8	-35.7
Ready-mix Concrete Manufacturers	67.2	50.6	63.9	47.7	-5.7	-25.4
Construction Industry	103.5	94.8	96.4	87.5	-7.7	-9.2
Transportation, Storage, Communication	129.0	126.1	133.4	129.2	2.5	-3.1
Electric Power, Gas and Water Utilities	163.8	177.1	173.7	186.3	5.2	7.3
Trade	157.2	112.8	158.9	114.3	1.3	-28.1
Finance, Insurance, Real Estate	131.9	131.7	136.9	136.0	3.3	-0.7
Community, Business and Personal Service	129.2	129.5	133.6	134.6	3.9	0.7
Public Administration and Defence	121.4	121.7	122.9	122.9	1.0	0.0

TABLE 2

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

		1976 December	1977 January	1977 December	1978 January	Percentage Changes January 78 / January 77	Percentage Changes January 78 / December 77
Metals							
Copper		61.1	71.8	57.2^{r}	56.8	-20.9	-0.7
Gold	kg	4 634.2	4 283.3	4 616.6^{r}	4 174.3	-2.5	-9.6
Iron ore		3 873.9	2 578.2	5 053.2	1 870.4	-27.5	-63.0
Lead		29.0	19.5	31.8^{r}	21.7	+11.3	-31.8
Molybdenum	t	1 515.7	1 090.7	1 050.1	1 173.5	+7.6	+11.8
Nickel		21.2	22.0^{r}	17.2	16.1	-26.8	-6.4
Silver	t	113.9	97.0	106.9^{r}	100.7	+3.8	-5.8
Uranium(1)	t	550.7	301.2	676.4	466.2	+54.8	-31.1
Zinc		93.8	73.0	83.1^{r}	72.9	-0.1	-12.3
Nonmetals							
Asbestos		138.8	110.5	128.7	87.1	-21.2	-32.3
Gypsum		612.1	320.9	641.9	353.1	+10.0	-45.0
Potash K_2O		468.7	454.6	372.1	493.5	+8.6	+32.6
Salt		731.5	641.9	677.1	674.7	+5.1	-0.4
Cement		492.9	356.1	465.3	319.6	-10.3	-31.3
Clay products	\$000	6,202.8	3,989.8^{r}	5,003.2	..	..	..
Lime		139.0	135.2	149.1	143.3	+6.0	-3.9
Fuels							
Coal		2 719.6	2 404.4	2 531.2	2 490.8	+3.6	-1.6
Natural gas	000 m^3	8 240 883.0	8 456 374.2^{r}	8 855 217.0^{r}	8 571 284.0	+1.4	-3.2
Crude oil and equivalent	000 m^3	8 399.5	7 022.9^{r}	8 472.9^{r}	6 554.4	-6.7	-22.6

(1) Tonnes uranium (1 tonne U = 1.299 9 short tons U_3O_8).
r Revised; .. Not available.

TABLE 3

Canada, Exports of Minerals*, Crude and Fabricated

	1975	1976	1977p
	($ millions)		
Crude	7,663.9	8,059.3	8,421.3
Fabricated	3,550.1	3,955.7	4,723.2
Total mineral exports	11,214.0	12,015.0	13,144.5
Total domestic exports, all products	32,504.2	37,328.5	43,327.9
Crude minerals as % of mineral exports	68.3	67.1	64.1
Crude minerals as % of exports, all products	23.6	21.6	19.4
Total mineral exports as % of exports, all products	34.5	32.2	30.3

*Including fuels

p Preliminary

TAXATION AND LEGISLATION AFFECTING MINING AND ALLIED INDUSTRIES IN CANADA

Provincial

Ontario

As announced in the budget speech, Bill 29, *The Mining Tax Amendment Act, 1978*, was introduced, and received first reading on March 7, 1978. The amendments are intended to relieve some of the tax burden on the mining industry in Ontario.

The amendment defines "social asset" as an asset that is incidental and ancillary to mining operations and relates directly to housing, recreational and service facilities which are necessary to attract and retain employees, and which is available for the use of all employees.

A mine operator is permitted to deduct the proportion of operating and maintenance expenses, excluding depreciation, of social assets attributable to mining and processing operations, provided that those expenses are not otherwise deductible under the act or the regulations. In computing these expenses, all rents and other payments received due to the operation of the social asset must be deducted. This amendment is retroactive to April 9, 1974.

The mandatory minimum deduction for depreciation of 5 per cent of the capital cost of mining assets acquired before April 10, 1974 is removed. Since April 9, 1974 there has been no mandatory minimum for mining assets. The 5 per cent mandatory minimum for processing assets will also be removed from the regulations.

In the case of a new mine or major expansion occurring after March 7, 1978, qualifying mining assets may be written off at a 100 per cent rate against profits derived from those operations and thus no mining tax will be payable until such expenditures are recovered. A new mine or major expansion must first be designated by the Minister.

The present 15 per cent minimum deduction for exploration and development expenses is removed.

Prior to this Budget, the amount deductible as processing allowance was restricted to 65 per cent of the profit from the whole operation, even though the processing allowance as determined by applying the allowable rate to the original value of the processing assets exceeded 65 per cent of the profit. From March 8, 1978, the unused excess of processing allowance may be carried forward for 3 years.

The total costs of processing Ontario ores outside Canada, including a processing allowance, will be permitted, effective March 8, 1978, in calculating the mining tax liability with respect to such ores.

A section provides that the changes are not to apply to certain uranium undertakings which signed contracts prior to March 8, 1978 to supply uranium to Ontario Hydro.

METALLIC MINERALS AND PRODUCTS

Aluminum

On March 1, 1978 Alcan Aluminum Corporation, a subsidiary of Alcan Aluminium Limited announced it had terminated its agreement with Revere Copper and Brass Incorporated to acquire Revere's 100 000 tonne aluminum smelter and rolling mill facilities at Scottsboro, Alabama. In December 1977, the United States Justice Department challenged Alcan's acquisition of Revere on antitrust grounds. According to Alcan, proposals put forth by Alcan and Revere to settle the case were rejected by the U.S. Justice Department. Because of the risks involved in protracted delays Alcan decided not to litigate the case.

The Japanese government has decided to support a joint Brazilian-Japanese aluminum project in Brazil. The project calls for building a 290 000 tonne-a-year aluminum smelter and a 726 000 tonne-a-year alumina plant, both near Belem at the mouth of the Amazon river. The project is scheduled for completion in 1981 at an estimated cost of $1.3 billion. According to the original agreement reached in 1976, the Japanese have a 49 per cent interest in the aluminum smelter and a 39.2 per cent interest in the alumina plant. Japanese private interests, including banks will supply 60 per cent of the Japanese share of the cost of both projects. A total of 32 Japanese companies, including the five aluminum smelters, will be participating in the project under the name Nippon Amazon Aluminum Company established in January 1977. This Japanese company and the Japanese government's overseas Economic Co-operation Fund are expected to set up joint companies with Brazil's Cia Vale do Rio Doce S.A. (CVRD) for operating these projects.

Aluminum shipments to the United States automotive plants was a record 648 600 tonnes in 1977 compared with 562 500 tonnes in 1976. The previous high was 640 300 tonnes in 1973. For the model year 1979 it is estimated the average U.S. automobile will contain 57.6 kilograms of aluminum, up from a figure of 51.7 kilograms in model year 1978. The increase in aluminum consumption reflects the efforts of automobile manufactures to save fuel by lowering the weight of the vehicles.

Copper

Copper prices rose substantially during March. The London Metal Exchange (LME) cash price for electrolytic wirebars began the month at a price equivalent to 54 (U.S.) cents a pound, and had risen by month-end to 60 (U.S.) cents a pound. Producer prices for wirebars and cathode in the United States were lowered at the beginning of March by 1.5 (U.S.) cents a pound to 62.125 and 61.50 (U.S.) cents a pound respectively. Producer prices were raised to 64.625 and 64.00 (U.S.) cents a pound by most producers in the last three days of the month. Canadian producer prices were lowered on March 1 to 69.875 cents a pound for wirebars and 69.125 cents for cathode. These prices remained unchanged until month-end.

Warehouse stocks of copper at commodity exchanges declined substantially during March. LME stocks declined from 599 775 tonnes on March 3 to 575 225 tonnes on March 24. Comex stocks declined from 167 055 tonnes to 163 002 tonnes in the same period.

Many Canadian copper producing companies published annual reports during March. Highlights from some of these reports were as follows:

- Two new mines, the Centennial Mine and the Westarm mine were brought into production by Hudson Bay Mining and Smelting Co., Limited on June 30, 1977 and January 3, 1978 respectively. In addition, a $26 million concentrator is being built near Snow Lake, Manitoba.

- Further development of Mattagami Lake Mines Limited's new Lyon Lake mine, has been deferred until markets improve. Lyon Lake was scheduled to start production in the second quarter of 1978.

- Mattabi ore reserves have been reduced to reflect low metal prices, higher costs and taxes.

- Renegotiations were completed in August 1977 between Lornex Mining Corporation Ltd. and Japanese concentrate buyers for higher treatment charges for the period April 1, 1977 to March 31, 1979.

- Falconbridge Nickel Mines Limited has continued work on the smelter modernization program and the plant is scheduled to begin operations during April 1978.

- For the first time in Noranda Mines Limited's history, combined earnings from manufacturing and forecast products exceeded those from mining and metallurgical operations. In 1978 mineral exploration and capital spending will be further reduced, as the company's focus remains on consolidation and retrenchment.

- Brenda Mines Ltd. expects a severe decline in earnings for the years 1979 and 1980 due to low grades of both copper and molybdenum in ore planned for mining in those two years.

- Gibraltar Mines Ltd. experienced difficult conditions in 1977. Should the poor copper markets of the past three years continue through 1978, shareholders must face the possibility that the mine could cease operations in 1980.

Zambia, Zaire and Peru agreed on March 1 to implement immediately an overall copper production cut of 15 per cent. Zaire followed this by advising customers that it will have to fill part of its contractual commitments by delivering wirebars bought on the market. The combined mine production of these countries in 1977 was 1 400 000 tonnes virtually all of which was exported.

During March, the Carter Administration threw its support behind a proposal to sell up to 41 000 tonnes of tin and some tungsten from the U.S. strategic stockpile and use part of the proceeds to buy 204 000 tonnes of copper. Bills proposing these actions were introduced by Senators Udall and Deconcini. Senator Domenici who introduced a similar proposed legislation in 1977, also supported the new bills.

The process of acquisition of mining assets by oil industry corporations is continuing. In March, Superior Oil Company (Superior) purchased shares and options in Hecla Mining Company (Hecla) of the U.S., sufficient to provide a 50 per cent interest in Hecla. Superior already controls McIntyre Mines Limited and the Falconbridge group of companies in Canada.

Gold

The International Monetary Fund (IMF) held its nineteenth gold auction on March 1, 1978 under the bid price method and awarded 524,800 troy ounces of fine gold to successful bidders at prices ranging from $181.13 (U.S.) an ounce to $185.76 (U.S.) an ounce and averaging $181.95 (U.S.) an ounce. At the eighteenth gold auction 524,800 ounces of gold were awarded to successful bidders at the common price of $175.00 (U.S.) an ounce. The afternoon fixing price on the London Gold Market on March 1 was $182.50 (U.S.) an ounce of gold. The gold price moved upwards after the auction reaching a high of $190.00 (U.S.) on March 8. In all, 127 final bids were submitted at the nineteenth auction for a total of 1,418,000 ounces, much above the 76 final bids for a total of 598,400 ounces received at the eighteenth auction. The number of bidders submitting final bids was nineteen, sixteen being awarded gold. Bidders were mainly European and North American banks and bullion dealers. About 84 per cent of the bids submitted were in the price range of $180.00-$182.99 (U.S.) an ounce of gold. The twentieth gold auction will be held on April 5, 1978 in which 525,000 ounces of gold will be offered for sale under the bid price method.

The amendments to the Articles of Agreement of the International Fund (IMF) which will remove restrictions on free trade in gold by central banks has received the necessary acceptance from 60 per cent of the 132 IMF members holding 80 per cent of the Funds voting power. Official ratification of the amendments is expected in early April. At that time transactions by central banks can be carried out at market related prices. The initial effect on the gold trading market is expected to be minimal.

The gold price continued its upward trend in March 1978 but fluctuated widely from a high of $190.00 (U.S.) an ounce on March 8 to a low of $177.25 (U.S.) an ounce on March 21. Rumours of a possible sale by the United States Treasury to obtain foreign currency was largely responsible for the quoted low price. The opening and closing prices for March were $183.80 (U.S.) and $181.60 (U.S.) an ounce respectively. The monthly average gold price for March 1978 of the afternoon fixing prices on the London Gold Market was $183.68 (U.S.) ($206.75 Cdn.) an ounce compared with $178.16 (U.S.) ($198.32 Cdn.) an ounce in February.

Iron and Steel

Steel Alberta Ltd., jointly owned by Alberta Energy Company Ltd. and The Alberta Gas Trunk Line Company Limited has acquired two iron ore leases in the Clear Hills region of Alberta, some 300 miles northwest of Edmonton. Steel Alberta, which has a 20.1 per cent equity interest in Interprovincial Steel and Pipe Corporation Ltd., of Regina, was formed as a vehicle for participating in iron and steel developments in western Canada.

The government of Nova Scotia has announced that in 1978-79 it will provide approximately $25 million in grants and assistance to Sydney Steel Corporation (Sysco) of Sydney. In 1977-78, the provincial Crown corporation received some $23.7 million in provincial aid. At the end of February 1978, Sysco had an outstanding debt of nearly $218 million.

The European Economic Community (EEC) and Japan have concluded a bi-lateral agreement on steel for the period ending December 31, 1978. Under the agreement, Japan will be allowed a price advantage in the EEC market averaging about 5 per cent below the minimum prices which were recently established for EEC domestic producers. Japan will guarantee that sales of Japanese steel will be held at about 1.2 million tonnes a year and the EEC will make certain concessions on antidumping actions regarding Japanese steel.

The government of Great Britain has issued a White Paper on the government owned British Steel Corporation (BSC). The government has been concerned due to the heavy financial losses which BSC has incurred in the past several years. The main feature of the paper is a program of rationalization aimed at making BSC more competitive in international markets. Better management and improved productivity must be achieved. New projects underway will be completed and inefficient plants will be phased out. Overall manpower requirements will be reduced. The government has called on management and labour to work together to take the steps necessary to make BSC a viable operation.

The three largest steelmaking companies in Mexico have been merged into one company to be known as Sidermex. Two of the companies are state owned, Altos Hornos SA and Sicartsa, while the third, Fundidora de Monterey, is 44 per cent state owned. Total annual steelmaking capacity of the new company will be approximately 6 million tonnes.

Three steel companies in Sweden are planning to merge their specialty steel operations into a single company. The three firms are A B Svenska Kullagerfabriken (SKF), Udderholms AB and Fagersta AB. The government of Sweden announced late last year that restructuring of the steel industry was necessary and that funding would be made available as an aid to this end.

Lead

Lead prices remained firm in North America during March even though there was considerable talk of an imminent decline in the producer price. The Canadian and United States' prices remained at 35.25 cents and 33 cents a pound respectively. The spot quote on the London Metal Exchange (LME) improved by 0.9 cents (U.S.) a pound to end the month at 25.2 cents (£311.75 a tonne). Metal inventories on the LME declined 200 tonnes to 63 275 tonnes as of March 31 (and 4 750 tonnes below the February 24 level).

Bolivia announced the signing of a $132 million (U.S.) contract with a West German and a Belgian firm to build a lead and silver refinery in Bolivia. The plant, with a planned capacity of 24 200 tonnes a year of refined metal would treat all of Bolivia's mine production when it comes on stream in 1981.

Kerr Addison Mines Limited announced in their annual report that the feasibility study on the Grum lead-zinc deposit in the Yukon Territory had been completed but that "it is not economically feasible to bring this property into production at this time and that metal prices substantially in excess of present levels would be required to support a production facility".

The month long strike at Hecla Mining Company's Lucky Friday mine in the United States ended on March 25, when a new three-year contract was accepted. Also in the U.S., fears of a strike at St. Joe Minerals Corporation Missouri Mine and smelting facilities ended with the announcement that a tentative agreement had been reached between the company and 1,000 of its employees. The wholly owned subsidiary of St. Joe Minerals Corporation has mines in Missouri that produce about 310 000 tonnes of 70 per cent grade lead concentrate and a smelter capacity of 210 000 tonnes a year of refined lead.

In Europe, strike action at the Hoboken, Netherlands lead plant of Metallurgie Hoboken-Overpelt S.A. has closed the operation (125 000 tonnes a year) as of April 1. The disagreement arises over managements' desire to freeze wages for 12 months.

Magnesium

The deteriorating market outlook for magnesium and escalating production costs in Norway have forced Norsk Hydro-Elektrisk Kvaelstofaktieselskab to defer plans to build the first 30 000 tonne a year stage of 100 000 tonnes a year magnesium reduction plant at Mongstad, Norway. This company's current capacity is 43 500 tonnes a year and is the second largest magnesium producer after the Don Chemical Company.

Mercury

Mine production of mercury in the United States in the fourth quarter of 1977 was 6,609 flasks of 76 pounds each, compared with 8,675 flasks in the third quarter. U.S. production for 1977 has been estimated at 31,375 flasks compared with 23,133 flasks in 1976. The McDermitt mine in Nevada, with an annual capacity of 20,000 flasks, accounted for most of the U.S. output in both 1976 and 1977. At the end of 1977 only three mines reported mercury production, one in California and two in Nevada. U.S. consumption of mercury in 1977, at 60,760 flasks, represented a decline of 6.3 per cent from that in 1976. A sharp reduction in the quantity of mercury used in the electrolytic preparation of chlorine and caustic soda accounted for most of the drop in consumption. United States imports of mercury in 1977 were 28,603 flasks, a significant decrease from the 43,964 flasks imported in 1976. The three largest exporters of mercury to the U.S. market in 1977, in declining order of quantity, were Algeria, Spain and Mexico. Together, they supplied almost 78 per cent of U.S. imports. Canada exported 1,561 flasks to the U.S. compared with 2,854 flasks in 1977, all of which came from Canadian stocks because there has been no mine production of mercury in Canada since Cominco Ltd.'s Pinchi Lake mine in British Columbia ceased operations in July 1975.

Nickel

Both Inco Limited and Falconbridge Nickel Mines Limited increased the price of their products to take effect April 1. Inco's new prices are up an average of 3.3 per cent (these quotes are from buyers, as Inco no longer announces an official list price). Sinter 75 is up 4 cents to $2.01 (U.S.) a pound; cathode is up 2 cents to $2.10 a pound and Incomet is up 4 cents to $2.04 a pound. The company also announced that its new prices were no longer on a delivered basis but (f.o.b.) Inco's plant. This represents an additional price increase and in the case of Pittsburgh steel buyers about 1.5 to 2.0 cents a pound. Falconbridge moved at month-end by increasing its price of electrolytic nickel by 5 cents to $2.13 a pound, and by increasing the ferronickel price to $2.10 a pound of nickel content (the previous price was $2.00 plus 2.5 cents a pound for iron content). All other producers had moved to higher prices earlier in the month and there is some confidence that these new levels will stick although Inco's switch from a delivered to an (f.o.b.) basis is more doubtful given the continuing slow turn around.

Inco's Exploraciones y Explotaciones Mineras Izabal, S.A. (Exmibal) nickel matte to the Clydach refinery in Wales but because of delays in finishing the changes to the fluid bed roaster at Clydach, the Guatemalan material (1.2 million pounds of nickel contained in matte) will not be treated until 1979. Exmibal is expected to ship a further 14 million pounds to Clydach in 1978.

The Japanese government has given the go-ahead to use $100 million to import nickel and chrome ore as part of their program to reduce the country's estimated $13 billion trade surplus. The purchases will take place in fiscal 1978 (beginning April 1) and about $90 million will be used for nickel. The material will be refined and held by the Rare Metals Stockpile Association. The financing will come from the Import-Export Bank at an annual interest rate of 4.75 per cent. Details on where the ores will be purchased and who will do the refining have not been decided on yet.

Silver

United Keno Hill Mines Limited plans to mine ore from new open-pit operations at its silver-lead-zinc property at Elsa in the Yukon Territory. In 1977, a small open pit was developed and mined out on the Porcupine vein. Ore tonnage developed was only 3 250 tonnes; however, the experience gained will be useful in developing other surface mining possibilities. Since 1946, when operations began, virtually all of the ore has come from underground operations. Since 1971 when the company's Husky mine reached full production, it has supplied about 50 per cent of total silver output. Production from the

Husky mine is expected to drop substantially early in 1979 and future profitability of the operation at Elsa is dependent mainly on continued high silver prices and replacement of the Husky ore with ore from open pit operations. Mine management is of the opinion that ore can be developed from this new source in sufficient quantities to meet milling requirements at least through 1980.

Because most of the open-pit ores are complex and highly oxidized, they do not lend themselves to proper treatment in the existing concentrator which is set up to process sulphide ores. Accordingly, rehabilitation work at a cost of some $650,000 is under way at the cyanide extraction plant which has been idle since 1967. Completion is scheduled for August 1978. Without these changes in the mining methods and milling process, it is unlikely that a viable mining operation could be maintained after 1980.

In 1976 United Keno Hill was Canada's fifth largest mine producer of silver, with 74 300 kilograms (2,390,000 troy ounces) of silver contained in concentrates produced. In 1977, the mine produced 87 000 kilograms (2,800,000 ounces) of silver.

A labour strike which began March 1 at the Lucky Friday mine of Hecla Mining Company in the Coeur d'Alene District of northern Idaho, ended April 1. This silver-lead-zinc mine is one of the largest silver producing mines in the United States. In 1977, it produced 165 500 tonnes of ore grading 505 grams per tonne (14.73 troy ounces per short ton) silver, 10.57 per cent lead and 1.38 per cent zinc. Total silver contained in concentrates produced was 83 570 kilograms (2,700,000 troy ounces).

Press reports indicate that India's silver exports in the fiscal year ended March 31, 1978 are expected to be some 580 tonnes (18.65 million ounces). This quantity is far short of the export quota of 900 tonnes (29 million ounces) set for the 1978 fiscal year and shorter still of the 1 655 tonnes (53.2 million ounces) exported in the 1977 fiscal year.

In the first three months of 1978 the New York Handy & Harman silver price displayed a sharply rising trend, reaching a high for the first quarter of U.S. $5.465 a troy ounce on March 14. In 1977, the New York price ranged between a low of $4.30 on January 11 and a high of $4.96 on March 21.

INDUSTRIAL MINERALS AND PRODUCTS

Asbestos

Environmental factors

Canadian asbestos industry officials continue to be very concerned about what is termed "an anti-asbestos lobby" in the EEC countries. This is particularly reflected in one recommendation by the European Parliament that urges the use of asbestos be prohibited where safe substitutes already exist. Over the longer term, the Parliament proposed that the use of asbestos should be phased out.

As a result of the recommendations, the Commission, which has classed asbestos as a first category pollutant in the Program of Action of the European Communities on the Environment, established a working group to study the asbestos problem. The Canadian asbestos mining companies will have input to studies by the working group through the Asbestos Information Association, an international asbestos product manufacturers and fibre producers group. Industry is now considering the alternatives by which there will be some assurance that "non-biased" views are presented in all EEC countries and that blanket regulations will not apply that could cause unwarranted difficulties for the industry.

Emphasis will be placed on the concept that, with proper information and with knowledge of modern methods of transporting and manufacturing, asbestos can be used as safely as other industrial materials.

Quebec has not been overly concerned to date with the "lobby" in the EEC because the bans being considered presently apply to only a few products utilizing a minor quantity of asbestos.

Issues will probably remain politicized for many years because objective data based on dose/effect relationships applicable to present day, relatively "clean" conditions are as yet unavailable. The European Parliament endorses the view that further research into dose/effect relationships is necessary.

Questions surrounding the safe use of any other fibrous substitutes, that are preferably or necessarily used in products to give reinforcement, are made more complex by the nearly established fact that it is the fibrous structure of asbestos, rather than its chemistry, that accounts for its hazardous nature.

McAdam Mining Corporation will undertake a $180,000 asbestos exploration program with the Quebec Department of Natural Resources sharing 50 per cent of the costs. The property, optioned from Campbell Chibougamau Mines Ltd. is located about 5 miles from McAdam's Roberge Lake prospect, Chibougamau, under option to Rio Algom Limited.

Quebec's participation is part of its 5-year exploration program for northwestern Quebec, where it plans to spend up to $65 million on general exploration in participation with the private sector.

Barite

Underground barite mining operations by Dresser Minerals at Walton, Nova Scotia were discontinued as a result of flooding. Water problems were first encountered in October 1970 and at that time mining of the lower mine levels was forced to cease. Recovery of barite is expected to continue from stockpiles, waste dumps and the tailings pond until September 1978.

As a result of the recent flooding, thirteen of a total forty employees have been laid off.

Earlier exploration by Dresser throughout the region did not offer encouraging results. The Nova Scotia Department of Mines has catalogued outside exploration work done by Dresser, however no new mine development to replace this loss in production is expected in the near future. The impending mine closure comes at an inopportune time because increased drilling activity in the Gulf Coast region and new activity off the eastern coast of the United States has substantially increased the demand for barite available in eastern North America.

Cement

On the basis of information filed with the United States Customs Service on August 2, 1977 indicating that portland hydraulic cement from Canada is being, or is likely to be, sold at less than fair value within the meaning of the Anti-dumping Act 1921 and amendments thereto, and subsequent preliminary investigation by the Customs Service, an "Antidumping Proceeding Notice" was published in the Federal Register of September 8, 1977. As a result of Fair Value Comparisons, a preliminary analysis suggests that the purchase price or the exporters sales price as appropriate, depending on whether the exported material reached the consumer directly or through the accounts of a related U.S. producer, probably will be lower than the home market price of such or similar merchandise. Margins were tentatively found to range as high as 369 per cent. A Withholding of Appraisement Notice effective March 17, 1978 has been published. Appraisement, for the purpose of determining the proper duties applicable to entries of portland hydraulic cement, will be suspended for six months.

Gypsum

Domtar Inc. announced its intention to purchase the integrated gypsum wallboard and covering paper plants of Kaiser Cement & Gypsum Co. in Long Beach and San Leandro, California. Also included in the sale are two ships currently used to haul gypsum from Mexico to the California plants. Domtar is currently expanding its gypsum wallboard production facilities at Caledonia, Ontario. This acquisition represents Domtar's first major move into the United States' gypsum industry. The company already operates two lime-producing plants in the United States - one at Tacoma, Washington, and one at Bellefonte, Pennsylvania.

Lime

Canadian Gypsum Company, Limited has agreed to sell its Guelph dolomite lime plant to Guelph Dolime Ltd., a wholly-owned subsidiary of BeachviLime Limited of Ingersoll, Ontario.

Sand and Gravel

Legislation, following a two-year study of the economic and environmental impact of sand and gravel extraction operations in Ontario, is expected to support the study's recommendations for much higher licencing fees and for increased levies in support of the rehabilitation fund which is used to return exploited land to usable condition. Obviously such increases in operational costs will be passed on to the consumer together with an expected 6 to 8 per cent price increase likely in 1978. Although there is no absolute shortage of aggregate in Ontario, a shortage of aggregate at reasonable prices could result from growing opposition to the industry. Already large deposits of accessible aggregate material have been removed from the "reserves" category by legislation. Further restrictions could curtail sand and gravel operations in Ontario in about 20 years. Industry has been hesitant to invest in new plant sites, which would increase their reserves base, until the impact of proposed legislation is known.

MINERAL FUELS AND PRODUCTS

Coal

Kaiser Resources Ltd. of Vancouver announced an agreement for long-term sale of coking coal to Romania. Shipments will begin in the second quarter of 1978 and continue until 1980 under the Agreement that calls for between 500 000 and 700 000 tonnes to be received by Mineral Import-Export of Romania. Along with the Agreement, a protocol was signed which called for possible participation of Romanian companies in the development of a mining project on Kaiser Resources' property.

Ontario Hydro's exports of power to Michigan continued throughout the 112 day strike by U.S. coal miners. The exports, of nearly 2,000 megawatts, were sufficient to meet about 20 per cent of average Michigan energy needs. The power was an important part of Michigan's coal-conversion plans as coal stockpiles, which were once at the six million ton level, were reduced to approximately one months' supply.

The 112 day coal miners strike will have both short and long term effects on Canadian coal users. Great Lakes shippers feel that one of the main problems will be a shortage of coal cargoes until nearly full production is achieved by the industry. It is expected to take up to six weeks time to get the coal flowing at normal levels to Lake Erie ports. Until then, ships usually engaged in moving coal can be diverted to grain, ore or other service. However this may mean that vessels will have to be taken off other trade later in the season to make up for reduced coal shipments earlier in the year.

Pacific Petroleums, Ltd. of Calgary filed a preliminary plan for a coal mine in northeastern British Columbia. The property is in the Monkman Pass area about 80 miles southwest of Davison Creek, British Columbia. Development of the mine is dependent on an improved world market for coking coal along with the development of adjacent coal properties since the relative isolation of this region necessitates major infrastructure expenses.

The Cape Breton Development Corporation (DEVCO) announced that coal production from its newly developed Prince Colliery at Point Aconi will be suspended. Financial losses resulting from production problems at the two year old mine were cited as the major factor leading to the closing. Workers at the Prince Mine will be offered employment at other DEVCO operations. DEVCO announced that two exploratory slopes will be driven at the Prince mine to gain enough depth of cover so that longwall mining can be introduced in the future. About 300 workers are presently employed in the Prince mine and 1977 output was approximately 200 000 tonnes.

Petroleum and Natural Gas

The Reserves Committee of the Canadian Petroleum Association (CPA) has recently released its estimates of Canada's proven and probable oil, natural gas liquids, natural gas and sulphur reserves. The CPA classifies reserves in two categories, proven and probable (which includes proven). The Association feels that probable reserves are the most realistic assessment of what can be recovered from existing fields and pools based on the latest known reservoir data.

Proven reserves of crude oil in Canada as of December 31, 1977 were estimated to be 5.9 billion barrels, a reduction of 286 million barrels from the previous year after production of 445.9 million barrels, while proven reserves of crude oil and natural gas liquids combined amounted to 7.8 billion barrels, a decline of 81,000 barrels. Probable reserves of crude oil equalled 7.05 billion barrels at the end of 1977, 382 million barrels less than in 1976 after annual production of 446 million barrels. Probable reserves of natural gas liquids, because of the first time inclusion of ethane reserves in Alberta, showed a net increase of 350 million barrels after production of 113 million barrels. The combined remaining probable liquid hydrocarbon reserves at the end of 1977 were 9.1 billion barrels, 32 million barrels less than a year earlier after production of 559 million barrels.

However, marketable natural gas reserves, both proven and probable appreciated. Proven reserves increased by 1.2 trillion cubic feet (tcf) after net production of almost 2.5 tcf, resulting in total proven reserves of 49.47 tcf. Probable reserves rose by 1.6 tcf after net production of 2.5 tcf resulting in a probable reserve total of 78 tcf.

Chevron Standard Limited and Petro-Canada announced on March 1, 1978 that they will jointly drill a deep offshore well to earn a 50 per cent interest in approximately 1 million acres of land owned by Shell Canada Resources Limited and Shell Explorer Limited offshore from Nova Scotia. Petro-Canada will earn a 60 per cent interest and Chevron a 40 per cent interest in the acreage to be acquired from Shell. The well will be drilled at a location approximately 135 miles southeast of Halifax in approximately 2,900 feet of water at the edge of the continental shelf.

Uranium

Denison Mines Limited has agreed to purchase, for a reported $158.5 million (U.S.), all the interests in certain uranium-nickel properties held by Inexco Mining Company (Canada) Ltd. The properties are mainly in the Key Lake and Maurice Bay areas of northern Saskatchewan. The sale is subject to the approval, within 60 days of the announcement, of Inexco's joint-venture partners, Uranerz Exploration and Mining Limited and Saskatchewan Mining Development Corporation, who have first-refusal rights on any such sale. Denison's offer is subject to a number of conditions, including a favourable outcome to the Bayda Commission Inquiry.

Gulf Minerals Canada Limited has announced that exploratory drilling has encountered ore-grade uranium mineralization about 1.6 kilometres southeast of its previously disclosed Collins Bay deposit in northern Saskatchewan. Ore intersections have been encountered in 85 holes extending over a length of 548 metres and a width of 61 metres; approximately half of the zone lies below Collins Bay. The Collins Bay deposit is some 9.5 kilometres northeast of the company's Rabbit Lake production complex.

Cenex Limited has reportedly signed a contract with Public Service Electrical Gas Co. of Newark, New Jersey for the sale of 92 320 kilograms of uranium for delivery over the period April to December 1979. The price for the initial delivery will be \$116.87/kilogram U (\$44.95 U.S./lb U_3O_8), with subsequent escalation at \$0.52/kilogram U (\$0.20/lb U_3O_8) per month. The uranium would come from its Beaverlodge property which it hopes to develop, commencing in 1978, subject to a favourable outcome of Saskatchewan's Bayda Commission Inquiry and the obtaining of a production permit from the AECB; it is understood that the ore would be processed under an arrangement with Eldorado Nuclear Limited.

Anglo American Corporation of South Africa Ltd. has announced that uranium production began in late February at East Rand Gold and Uranium Company Limited's new tailings treatment plant.

Fluor Corp. of the United States has obtained a \$25 to \$30 million contract from the U.S. Department of Energy to design and engineer the major portion of a new gas centrifuge uranium enrichment plant to be built near Portsmouth, Ohio. The planned facility will cost an estimated \$4,500 million (1979 dollars).

SPECIAL ITEM

CANADIAN COAL TRENDS IN 1977

A number of very encouraging trends in Canadian coal production and consumption patterns can be observed from the comparison of 1977 results with those of the previous year.

Production

Over-all production increased by 13 per cent to 31.62 million short tons. The greatest gains in bulk output (+17 to 23 per cent) were achieved in the prairie strip mines mainly for consumption in power plants in Alberta, Saskatchewan and Manitoba.

In Nova Scotia, though the increase in total production was only 9 per cent, the operation of Devco's new preparation plant has had the effect of substantially increasing metallurgical coal production (+213 per cent) and diminishing thermal coal production (-38 per cent).

Metallurgical coal output decreased in Alberta under the influence of the soft marketing conditions which prevailed throughout the year and although the output increased in British Columbia, this was due to normalization of operations after the prolonged strikes which had been experienced in 1976.

Imports

Over-all imports increased by 6 per cent to 17 million short tons. Greater imports of thermal coal (+21 per cent), including 700,000 tons purchased on the spot market by Ontario Hydro in their first entry into that market since 1973, were offset to a certain extent by lower imports of metallurgical coal (-12 per cent) resulting from industrial action in U.S. mines throughout the year.

Exports

Notwithstanding the poor marketing conditions for both metallurgical and thermal coals during 1977, exports of the former increased by 9 per cent to 12.76 million short tons. The small export trade in thermal coal dropped sharply by 31 per cent to 0.83 million short tons but this was, in part, due to the switch in the quality of coal products in Nova Scotia.

Net Canadian Supply

Thermal coal supply for Canadian use grew by a healthy 19 per cent to 26.7 million short tons. The metallurgical coal supply fell by 5 per cent which reflects the continued recession in the steel industry and in reality indicates that the Central Canadian steel companies are performing better than most of their counterparts.

The over-all supply to Canadian consumers rose 12 per cent and reached 35.03 million short tons which restored the level of coal consumption in Canada to the 1954 position.

Comparative Coal Statistics 1977 vs 1976

1(a) Coal Production (Millions Short Tons)

Region	Metallurgical 1977	Metallurgical 1976	Metallurgical Difference	Thermal 1977	Thermal 1976	Thermal Difference	Total 1977	Total 1976	Total Difference
Nova Scotia	1.25	0.40	+ 213%	1.13	1.81	- 38%	2.39	2.20	+ 9%
New Brunswick	-	-	-	0.31	0.33	- 6%	0.31	0.33	- 6%
Saskatchewan (Lignite)	-	-	-	6.04	5.16	+ 17%	6.04	5.16	+ 17%
Alberta (Bituminous)	4.53	4.92	- 8%	0.18	0.13	+ 38%	4.71	5.05	- 6%
(Sub-Bituminous)	-	-	-	8.71	7.07	+ 23%	8.71	7.07	+ 23%
British Columbia	8.60	7.52	+ 14%	0.87	0.76	+ 14%	9.46	8.28	+ 14%
Canada	14.38	12.84	+ 12%	17.24	15.26	+ 13%	31.62	28.09	+ 13%

1(b) Imports (Millions Short Tons)

	Metallurgical 1977	Metallurgical 1976	Metallurgical Difference	Thermal 1977	Thermal 1976	Thermal Difference	Total 1977	Total 1976	Total Difference
Canada	6.71	7.63	- 12%	10.29	8.47	+ 21%	17.00	16.10	+ 6%

1. Total Supply. Production + Imports (Millions Short Tons)

	Metallurgical 1977	Metallurgical 1976	Metallurgical Difference	Thermal 1977	Thermal 1976	Thermal Difference	Total 1977	Total 1976	Total Difference
Canada	21.09	20.47	+ 3%	27.53	23.73	+ 16%	48.62	44.19	+ 10%

2(a) Exports (Millions Short Tons)

	Metallurgical 1977	Metallurgical 1976	Metallurgical Difference	Thermal 1977	Thermal 1976	Thermal Difference	Total 1977	Total 1976	Total Difference
Canada	12.76	11.70	+ 9%	0.83	1.21	- 31%	13.59	12.91	+ 5%

2. Net Supply for Canadian Consumption. Total Supply - Exports (Millions Short Tons)

	Metallurgical 1977	Metallurgical 1976	Metallurgical Difference	Thermal 1977	Thermal 1976	Thermal Difference	Total 1977	Total 1976	Total Difference
Canada	8.33	8.77	- 5%	26.70	22.52	+ 19%	35.03	31.28	+ 12%

SPECIAL ITEM

EMPLOYMENT IN THE MINERAL INDUSTRY

The Human Resources Section of the Mineral Policy Sector has completed the first in a series of ministerial reports on the state of employment within the mining industry. The following points are the main highlights pertaining to the nonferrous metal mines (including smelters and refineries where they are integrated at the minesites.)

- Nonferrous metal mines usually account for about half of total employment in all mines.

- Employment in nonferrous metal mines:

  1976 47,000
  1977 .... 45,000 (5 per cent decline)
  1978 .... 39,000 (13 per cent decline)

- Employment in Canadian nonferrous metal mines will decline by nearly 6,000 or 13 per cent in 1978 compared with 1977.

- Of the 6,000, nearly half of the reductions have already been announced by the companies concerned.

- The reductions will be realized through a combination of lay-offs and attrition.

- Two-thirds of the jobs lost will occur in Ontario. British Columbia (875), Quebec (550), Manitoba (375), and New Brunswick (65) account for the remainder.

- The source of the problem for workers, communities and companies relates primarily to world mineral markets. A general weakening in 1977 has continued into 1978 with no signs of significant recovery before 1979. If the market outlook does not improve in the months ahead, 1978 employment will decline further.

- Future reports, already well underway, will document the state of employment in other commodities.

RECENT AMALGAMATIONS AND MERGERS PUBLISHED IN THE GAZETTES

Assembly Mines, Limited amalgamated with Murray Watts Explorations Limited to form a new company under the name of Assembly Mines, Limited on December 30, 1977.
Source: Ontario Gazette, March 11, 1978.

Inter-Provincial Gas Company (1964) Limited amalgamated with 111182 Oil and Gas Ltd. into a new company under name of Inter-Provincial Gas Company (1964) Limited on February 10, 1978.
Source: Alberta Gazette, February 28, 1978.

Inland Gas and Oil Company Limited amalgamated with 111181 Oil and Gas Ltd. into a new company under name of Inland Gas and Oil Company Limited on February 10, 1978.
Source: Alberta Gazette, February 28, 1978.

NEW PUBLICATIONS

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

Preprints, *Canadian Minerals Yearbook, 1976*. Beryllium; Clays and Clay Products; Cobalt; Gold; Rare Earths; Talc, Soapstone and Pyrophyllite; Tin; Zinc; price 50¢ a copy.

Operators List 1, January 1977, *Metal and Industrial Mineral Mines and Processing Plants in Canada*, price $3.00.

MR 176. *Labour-Management Relations: An Overview*, by John Desmarais, price $3.00.

The above publications are available from the Publishing Centre, Department of Supply and Services, Ottawa.

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