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THE CANADIAN MINERAL INDUSTRY

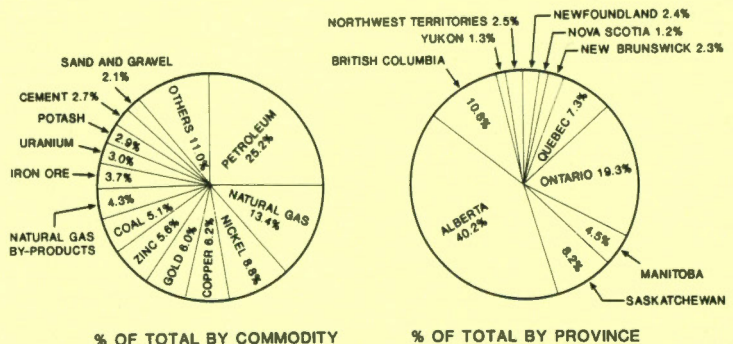
MONTHLY REPORT

MAY 1989

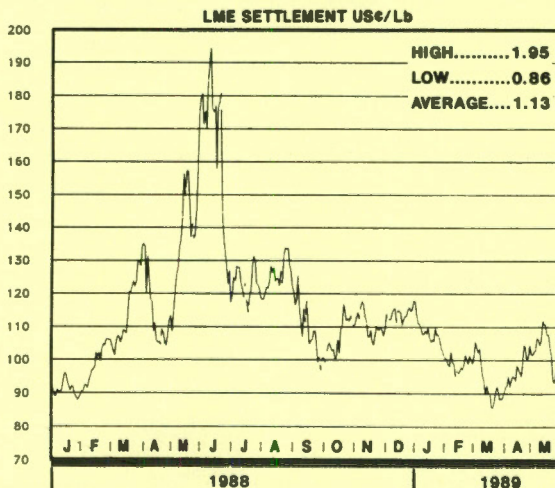
TABLE 3. METAL PRICES - 1988

	October	November
Copper		
Electrolytic, U.S. producer f.o.b. refinery, cents (U.S.)	136.648	150.920
Electrolytic, COMEX, 1st pos. plus 5¢, cents (C.)	166.904	185.133
Electrolytic, Standard, LME cash, cents (U.S.)	127.646	143.821
Lead		
New York, cents (U.S.)		
Montreal, cents (C.)		
LME cash, cents (U.S.)		
Silver		
New York, cents (U.S.) per troy oz.		
Toronto, cents (C.) per troy oz.		
LME cash, cents (U.S.) per troy oz.		
Zinc		
St. Louis, H.G., cents (U.S.)		
Montreal, Electrolytic, cents (C.)		
LME cash, cents (U.S.)		
Tin		
New York, dealers, cents (U.S.)		
Metals Week, composite, cents (U.S.)		
Gold		
London, p.m., US\$ per troy oz.		
Average, (Sharps Pixley) US\$ per troy oz.		
High, (Sharps Pixley) US\$ per troy oz.		
Low, (Sharps Pixley) US\$ per troy oz.		
Mercury		
New York, dealers, US\$ per flask		
Nickel		
New York, dealers, cathode (U.S.)		
LME cash, US\$		
Antimony		
New York, dealers, cents (U.S.)		

CANADA, VALUE OF MINERAL PRODUCTION, 1988



LONDON DAILY ALUMINUM PRICES 1988-89



600.000
7.010
131.520
108.035
8.400
7.300
55.000
3.429
13.150
8.

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THE CANADIAN MINERAL INDUSTRY

MONTHLY REPORT



Energy, Mines and
Resources Canada

Énergie, Mines et
Ressources Canada

PREFACE

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

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CONTENTS

	Page
HIGHLIGHTS	1
ECONOMIC TRENDS	2
EMPLOYMENT TRENDS	20
METALLIC MINERALS AND PRODUCTS	21
Nonferrous and Precious Metals Prices	21
Aluminum	21
Copper	22
Gold	24
Lead	24
Nickel	25
NEW PUBLICATIONS	26

LIST OF TABLES

1.	Canada, Production of Leading Minerals	4
2.	Canada, Real Gross Domestic Product at Factor Cost by Industry, in 1981 Prices	5
3.	Metal Prices -1989	6
4.	Canada's Ten Leading Mineral Commodities; Value of Production by Mineral and Percent Contribution to Value of Canadian Production, by Province or Territory, 1978 and 1988	7
5.	Production of Canada's Ten Leading Mineral Commodities, 1970 and 1980-88	8
6.	Value of Mineral Production of Canada, by Province or Territory, 1978 and 1988	9
7.	Canada, Average Weekly Earnings, by Industrial Division, 1981-88	10
8.	Average Weekly Wages and Salaries in the Canadian Mineral Industry, 1987 and 1988	11
9.	Leading Minerals in the Provinces, Territories and Canada: 1987 and 1988	12
10.	Canada, Principal Statistics of the Mineral Manufacturing Industries, 1986	14
11.	Canada, Principal Statistics of the Mineral Manufacturing Industries, 1980-86	16
12.	Canada, Census Value Added, Total Activity, Mining and Mineral Manufacturing Industries, 1980-86	17
13.	Canada, Employment, Salaries and Wages in the Mineral Manufacturing Industries, 1980-86	19

THE CANADIAN MINERAL INDUSTRY FOR MAY

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

HIGHLIGHTS

1. Aluminum prices strengthened at the beginning of May, but eased during the remainder of the month. The average London Metal Exchange (LME) price for the month was US102.6¢/lb. compared to 96.5¢/lb. in April.
2. Construction on the new aluminum smelter project at Sept-Îles, Quebec is expected to begin this summer and production is expected to start in 1992.
3. Copper prices averaged US124.4¢/lb. on the LME during the month of May, while the COMEX price averaged 121.1¢/lb. On a year-to-date basis, the LME price has averaged 141.7¢/lb. and the COMEX price 137.8¢/lb.
4. The status of labour negotiations in the copper industry in Canada and the United States is being watched closely by the industry. Interruption of supplies from one or more of the producers involved could counter the recent trend of declining copper prices.
5. Gold prices continued to weaken during the month of May and fell to a three-year low of US\$359.25/oz. The monthly average price was about \$372/oz. compared to about \$385/oz. in April. The average gold price for the year to date is \$388/oz.
6. In South Africa, the world's largest gold producer, several high-cost mines have announced possible closure due to the recent low gold prices.
7. Lead prices strengthened in May and averaged US29.2¢/lb. on the LME compared to 27.6¢/lb. in April. This increase is linked to the rise in the U.S. dollar versus the pound sterling.
8. Demand for nickel continues to remain strong. Production of stainless steel, which accounts for about 60 percent of nickel consumption, continues to increase in Japan and Western Europe, although it is declining in the United States.

ECONOMIC TRENDS

Table 1 provides a comparison of the volume of production of Canada's leading minerals for the months of February and March 1989, the corresponding months a year ago and the year-to-date totals.

Table 2 provides information on Canada's Gross Domestic Product at factor cost by industry at 1981 prices. The data is also annualized and seasonally adjusted.

The annual rate shown for any given month is calculated by multiplying the figure for that month by twelve. It is important to note, however, that if a particular month has been influenced by special factors such as a strike, the annualized data will reflect this bias.

Factor cost refers to output which is valued exclusive of excise taxes and duties, and provincial and municipal sales tax. Factor cost does, however, include subsidies and other taxes which are not a function of the level of output or sale.

Seasonally adjusted data represent time-series data from which the effects of repetitive and clearly defined seasonal fluctuations have been removed. Such a practice permits the isolation of trends in the economy which might otherwise be obscured. Seasonal factors include such items as climate, trade practices and social institutions such as Christmas and Easter.

The GDP data are subject to ongoing revision.

Statistics Canada reported that GDP at factor cost at 1981 prices declined by 0.3% in March, following a 0.2% increase in both February and January. This was the first significant monthly decrease in economic activity since October 1986, when GDP fell 0.5%. GDP in March stood 2.5% above the corresponding month of last year. Output of both goods and services producing industries fell 0.3% in March.

Table 3 shows the prices of selected metals for February, March and April 1989.

Table 4 shows the value of production of Canada's ten leading mineral commodities by province for the years 1978 and 1988. The provincial shares for each commodity are also given.

Table 5 provides historical data for the volume of production of Canada's ten leading mineral commodities for the selected years 1970 and 1980-88.

Table 6 shows the total value of mineral production by province for the years 1978 and 1988. The percentage share and rank by province are also given.

Table 7 provides a comparison of average weekly earnings in Canada by industry sector for the years 1981-88.

Table 8 provides data on employment and earnings in the Canadian mineral industry for 1987 and 1988.

Table 9 provides details on the value of production by province for the years 1987 and 1988 on the basis of those specific commodities that are significant in a particular province.

Tables 10 through 13 provide miscellaneous statistics on the mineral manufacturing industries such as employment data, wages and salaries, value added, etc. These tables originally appeared in the January 1989 issue of this publication. They have subsequently been expanded to include the data associated with the fabricated metal products industries.

TABLE 1. CANADA, PRODUCTION OF LEADING MINERALS

		1988			1989			Percentage Changes		
		February	March	Total 3 Months	February	March	Total 3 Months	March 1989 March 1988	March 1989 February 1989	1st 3 months 1989 1988
(000 tonnes except where noted)										
Metals										
Copper		63.1	76.9 ^r	205.6 ^r	61.0	59.9	183.6	-22.1	-1.8	-10.7
Gold	kg	9 511.7	10 939.8 ^r	30 157.0 ^r	10 275.6	12 517.6	33 248.2	14.4	21.8	10.3
Iron ore		2 657.8	2 213.1	7 052.3	2 570.5	1 665.8	6 008.0	-24.7	-35.2	-14.8
Lead		32.9	31.3 ^r	94.2	23.4	24.1	69.3	-23.0	3.0	-26.4
Molybdenum	t	1 114.9	1 123.0 ^r	3 084.9 ^r	1 121.0	977.4	3 059.4	-13.0	-12.8	-0.8
Nickel		17.1	17.9 ^r	51.0 ^r	18.5	17.8	52.7	-0.6	-3.8	3.3
Silver	t	121.5	130.2 ^r	365.4 ^r	100.3	109.1	313.0	-16.2	8.8	-14.3
Uranium ¹	t	1 331.2	1 329.4	3 809.7	871.3	1 249.5	3 154.6	-6.0	43.4	-17.2
Zinc		100.7	100.5 ^r	298.0 ^r	78.8	90.1	239.6	-10.3	14.3	-19.6
Nonmetals										
Asbestos		47.6	59.2	154.0	56.7	58.5	161.7	-1.2	3.2	5.0
Clay products	\$000	8 528.9	12 898.7	29 881.7	8 934.1	12 149.9	31 511.4	-5.8	36.0	5.5
Gypsum		617.9	662.9 ^r	1 985.0 ^r	575.1	718.4	1 861.0	8.4	24.9	-6.2
Potash K ₂ O		764.9	781.2 ^r	2 148.6	544.9	743.6	1 856.1	-4.8	36.5	-13.6
Cement		536.1	831.5	1 813.1	444.2 ^r	735.5	1 655.2	-11.5	65.6	-8.7
Lime		188.4	199.8	582.2	202.7	220.1	635.6	10.2	8.6	9.2
Salt		1 059.9	671.0	2 536.3	952.0	803.2	2 857.9	19.7	-15.6	12.7
Fuels										
Coal		5 750.0	6 277.0 ^r	18 223.8 ^r	5 477.9	..	..	..	..	..
Natural gas	million m ³	10 406.0	10 083.0	31 969.0	..	..	..	..	..	..
Crude oil and equivalent	000 m ³	7 969.0	8 585.0 ^r	24 698.0 ^r	..	..	..	..	..	..

¹ Tonnes uranium (1 tonne U = 1.2999 short tons U₃O₈).^r Revised; .. Not available.

**TABLE 2. CANADA, REAL GROSS DOMESTIC PRODUCT AT FACTOR COST BY INDUSTRY, IN 1981 PRICES, MONTHLY
(SEASONALLY ADJUSTED AT ANNUAL RATES)**

Industry Sector	1988	1989		Percentage Change	
	March	January	February	March	March 1989 March 1988
(\$ million)					
Total Economy	392 971.0	403 155.1	404 108.1	402 909.4	2.5
Primary Industries					
Agriculture	10 115.1	10 969.2	11 044.8	10 996.8	8.7
Forestry	2 861.7	3 016.8	2 889.6	2 857.2	-0.2
Fishing and Trapping	767.8	517.2	505.2	496.8	-35.3
Mines, Quarries and Oil Wells	23 581.1	22 704.2	23 239.1	23 348.8	-1.0
Mining Industries	8 400.2	8 532.0	8 572.8	8 626.8	2.7
Gold Mines	1 441.5	1 670.4	1 708.8	1 731.6	20.1
Iron Mines	622.2	595.2	651.6	638.4	2.6
Other Metal Mines	4 140.9	3 982.8	3 932.4	3 961.2	-4.3
Nonmetal Mines	865.1	918.0	852.0	802.8	-7.2
Asbestos Mines	158.4	196.8	206.4	186.0	17.4
Mineral Fuels					
Coal Mines	1 063.8	1 054.8	1 112.4	1 158.0	8.9
Crude Petroleum and Natural Gas	13 377.7	13 033.1	13 374.1	13 439.6	0.5
Secondary Industries					
Manufacturing	76 920.8	79 070.6	78 763.3	78 478.1	2.0
Non-durable Manufacturing	33 101.6	33 362.9	33 344.9	33 168.6	0.2
Durable Manufacturing	43 818.4	45 707.7	45 418.4	45 309.5	3.4
Primary Metal Industries	6 258.5	6 127.7	6 211.1	6 222.1	-0.6
Primary Steel Industries	2 577.8	2 413.2	2 510.4	2 640.0	2.4
Steel, Pipe and Tube Industry	381.1	280.8	274.8	284.4	-25.4
Iron Foundries	353.3	381.7	364.0	359.6	1.8
Smelting and Refining	2 248.9	2 313.6	2 335.2	2 209.2	-1.8
Nonmetallic Mineral Products	2 427.0	2 502.5	2 482.3	2 377.8	-2.0
Clay Products Industry	83.7	89.1	87.4	83.9	0.2
Cement Industry	329.8	349.2	334.8	332.4	0.8
Ready-mix Concrete Industry	473.6	519.5	494.6	463.4	-2.2
Construction Industry	27 704.9	29 583.6	30 108.0	30 001.2	8.3
Transportation and Storage	18 306.4	18 211.2	18 284.4	18 426.0	0.7
Communications	11 794.1	12 745.2	12 904.8	12 956.4	9.8
Other Utilities	11 479.1	11 311.2	11 391.6	11 349.6	-1.1
Wholesale Trade	22 411.8	22 793.6	22 651.6	22 418.8	0.0
Retail Trade	25 517.1	26 199.3	26 068.9	25 809.3	1.1
Finance, Insurance and Real Estate	57 246.1	60 024.9	60 028.9	59 596.1	4.1
Community, Business and Personal Service	40 251.9	41 166.1	41 318.7	41 199.1	2.4

TABLE 3. METAL PRICES - 1989

	February	March	April
Copper			
Electrolytic, U.S. producer f.o.b. refinery, cents (U.S.)	138.811	152.528	140.720
Electrolytic, COMEX, 1st pos. plus 5¢, cents (C.)	139.195	147.880	141.580
Electrolytic, Standard, LME cash, cents (U.S.)	140.474	148.059	..
Lead			
New York, cents (U.S.)	37.000	35.000	35.000
Montreal, cents (C.)	47.500	42.000	42.000
LME cash, cents (U.S.)	28.168	26.693	27.599
Silver			
New York, cents (U.S.) per troy oz.	588.605	593.162	579.075
Toronto, cents (C.) per troy oz.	728.060	733.100	713.950
LME cash, cents (U.S.) per troy oz.	594.200	591.607	572.938
Zinc			
St. Louis, H.G., cents (U.S.)	87.699	93.710	88.065
Montreal, Electrolytic, cents (C.)	100.000	113.000	104.000
LME cash, cents (U.S.)	87.540	88.893	74.430
Tin			
New York, dealers, cents (U.S.)	362.563	407.750	471.000
Metals Week, composite, cents (U.S.)	491.653	543.087	623.632
Gold			
London, p.m., US\$ per troy oz.	387.508	390.150	382.770
Mercury			
New York, dealers, US\$ per flask	315.789	312.391	295.000
Nickel			
New York, dealers, cathode (U.S.)	8.332	7.715	6.745
LME cash, US\$	8.402	7.782	6.760
Antimony			
New York, dealers, cents (U.S.)	100.000	100.000	98.000
Platinum			
New York, refined, US\$ per troy oz.	600.000	600.000	600.000
Cadmium			
New York, dealers, US\$	8.000	7.457	7.050
Aluminum			
LME cash, cents (C.)	113.419	112.430	114.468
LME cash, cents (U.S.)	95.390	94.060	96.305
Cobalt			
Shot/cathode/250 kg., US\$	8.400	8.400	8.400
U.S. spot cathode, US\$	7.575	7.500	7.500
Tungsten			
LMB ore, low, US\$/MTU	55.000	55.000	55.000
Molybdenum			
M.W. dealer oxide, US\$	3.672	3.753	3.685
Uranium			
Nuexco, US\$ U ₃ O ₈	11.600	11.200	10.700

Average U.S. Exchange Rate for February = 1.1890, March = 1.1953, April = 1.1886.

.. Not available.

Note: Prices are per pound unless otherwise stated.

TABLE 4. CANADA'S TEN LEADING MINERAL COMMODITIES; VALUE OF PRODUCTION BY MINERAL AND PERCENT CONTRIBUTION TO VALUE OF CANADIAN PRODUCTION, BY PROVINCE OR TERRITORY, 1978 AND 1988

	Nickel		Copper		Gold		Zinc		Coal		Iron Ore		Uranium		Potash		Cement		Sand and Gravel	
	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)
1978																				
Newfoundland	-	-	18 964	1.7	3 888	1.0	36 562	4.5	-	-	564 114	46.2	-	-	-	-	5 685	1.0	7 452	1.8
Prince Edward Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2 068	0.5
Nova Scotia	-	-	-	-	-	-	-	-	120 722	15.5	-	-	-	-	-	-	12 128	2.1	19 852	4.8
New Brunswick	-	-	17 004	1.6	2 408	0.6	156 490	19.1	8 723	1.1	-	-	-	-	-	-	12 643	2.2	10 499	2.5
Quebec	-	-	148 274	13.7	107 213	28.0	73 191	9.0	-	-	337 512	27.6	-	-	-	-	130 147	22.7	78 138	18.7
Ontario	474 604	74.7	32 400	29.9	154 462	40.4	211 416	25.9	-	-	308 367	25.2	363 845	58.9	-	-	183 110	32.0	144 253	34.6
Manitoba	160 847	25.3	99 053	9.1	10 440	2.7	43 731	5.3	-	-	-	-	-	-	-	-	34 544	6.0	27 974	6.7
Saskatchewan	-	-	9 911	0.9	2 859	0.7	4 550	0.6	18 609	2.4	-	-	253 683	41.1	504 535	100.0	24 689	4.3	16 213	3.9
Alberta	-	-	-	-	246	0.1	-	-	256 905	33.0	-	-	-	-	-	-	113 537	19.8	46 422	11.1
British Columbia	-	-	450 046	41.5	46 620	12.2	73 596	9.0	374 467	48.0	11 597	0.9	-	-	-	-	56 107	9.8	63 989	15.4
Yukon	-	-	16 474	1.5	8 519	2.2	74 077	9.1	-	-	-	-	-	-	-	-	-	-	-	-
Northwest Territories	-	-	519	...	45 770	12.0	143 911	17.6	-	-	-	-	-	-	-	-	-	-	-	-
CANADA	635 451	100.0	1 084 245	100.0	382 423	100.0	817 525	100.0	779 426	100.0	1 221 599	100.0	617 528	100.0	504 535	100.0	572 590	100.0	416 860	100.0
1988^P																				
Newfoundland	-	-	-	-	x	x	49 256	2.4	-	-	726 574	52.3	-	-	-	-	10 791	1.1	16 856	2.2
Prince Edward Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2 625	0.3
Nova Scotia	-	-	x	x	x	x	x	x	207 820	10.9	-	-	-	-	-	-	58 232	5.8	33 600	4.3
New Brunswick	-	-	30 847	1.3	1 274	0.1	379 016	18.4	33 880	1.8	-	-	-	-	x	x	4 058	0.4	x	x
Quebec	-	-	145 108	6.3	562 868	25.4	120 956	5.9	-	-	x	x	-	-	-	-	194 850	19.2	x	x
Ontario	2 166 259	66.5	824 034	35.6	1 002 920	45.3	548 838	26.6	-	-	x	x	523 430	47.2	-	-	449 025	44.3	288 985	36.9
Manitoba	1 089 714	33.5	171 160	7.4	74 246	3.4	94 179	4.6	-	-	-	-	-	-	-	-	46 217	4.6	37 240	4.8
Saskatchewan	-	-	8 057	0.3	36 096	1.6	x	x	110 100	5.8	-	-	584 526	52.8	x	x	16 774	1.7	30 975	4.0
Alberta	-	-	-	-	353	...	-	-	456 000	23.9	-	-	-	-	-	-	126 545	12.5	133 875	17.1
British Columbia	-	-	1 134 787	49.0	225 877	10.2	196 853	9.5	1 100 000	57.7	3 170	0.2	-	-	-	-	106 133	10.5	133 110	17.0
Yukon	-	-	x	x	74 568	3.4	194 881	9.4	-	-	-	-	-	-	-	-	-	-	7 130	0.9
Northwest Territories	-	-	x	x	197 906	8.9	477 630	23.1	-	-	-	-	-	-	-	-	-	-	7 900	1.0
CANADA	3 255 974	100.0	2 317 018	100.0	2 215 128	100.0	2 064 647	100.0	1 907 800	100.0	1 388 129	100.0	1 107 956	100.0	1 058 716	100.0	1 012 625	100.0	782 675	100.0

Sources: Energy, Mines and Resources Canada; Statistics Canada, Catalogues #26-201 and #26-202
 - Nil; x Confidential; ... Amount too small to be expressed; ^P Preliminary

TABLE 5. PRODUCTION OF CANADA'S TEN LEADING¹ MINERAL COMMODITIES, 1970, AND 1980-88

	Unit	1970	1980	1981	1982	1983	1984	1985	1986	1987 ^r	1988 ^p
Nickel	000 kg	277 489	184 802	160 247	88 581	125 022	173 725	169 971	163 639	189 086	213 871
Copper	000 kg	610 275	716 363	691 328	612 455	653 040	721 826	738 637	698 527	794 149	721 588
Gold	000 g	74 939	50 620	52 034	64 735	73 512	83 446	87 562	102 899	115 818	127 843
Zinc	000 kg	1 135 708	883 697	911 178	965 607	987 713	1 062 701	1 049 275	988 173	1 157 936	1 253 580
Coal	000 t	15 063	36 677	40 088	42 811	44 787	57 402	60 436	57 811	61 211	69 500
Iron ore	000 t	47 458	49 068	49 551	33 198	32 959	39 930	39 502	36 167	37 702	38 742
Uranium	000 kg	3 724	6 739	7 507	7 643	6 823	10 272	10 441	11 502	13 612	13 233
Potash ²	000 t	3 420	7 201	6 549	5 309	6 294	7 527	6 661	6 752	7 668	8 070
Cement	000 t	7 208	10 274	10 145	8 426	7 871	9 240	10 192	10 611	12 603	12 611
Sand and gravel	000 t	183 845	276 452	259 661	216 274	233 408	233 759	256 183	257 677	278 546	276 064

Sources: Energy, Mines and Resources Canada; Statistics Canada, Catalogues #26-201 and #26-202.

¹ Based on contribution in 1988 to value of mineral production, which includes coal but excludes crude petroleum and natural gas. ² Shipments of K₂O equivalent.

^p Preliminary; ^r Revised.

TABLE 6. VALUE OF MINERAL PRODUCTION¹ OF CANADA, BY PROVINCE OR TERRITORY, 1978 AND 1988

	1978			1988 ^P		
	(\$000)	(%)	(Rank)	(\$000)	(%)	(Rank)
Ontario	2 670 983	28.2	1	7 069 265	33.4	1
British Columbia	1 447 609	15.3	3	3 408 477	16.1	2
Quebec	1 796 050	19.0	2	2 716 152	12.8	3
Saskatchewan	867 463	9.2	4	1 734 133	8.2	4
Manitoba	413 703	4.4	7	1 596 879	7.6	5
Alberta	550 076	5.8	6	1 207 965	5.7	6
Newfoundland	675 028	7.1	5	888 476	4.2	7
New Brunswick	339 527	3.6	8	831 028	3.9	8
Northwest Territories	270 953	2.9	9	766 155	3.6	9
Yukon	218 804	2.3	10	465 530	2.2	10
Nova Scotia	210 659	2.2	11	461 063	2.2	11
Prince Edward Island	2 068	...	12	2 625	...	12
CANADA	9 462 923	100.0		21 147 748	100.0	

Sources: Energy, Mines and Resources Canada; Statistics Canada, Catalogues #26-201 and #26-202.

¹ Excludes natural gas and crude petroleum. Includes coal.

^P Preliminary; ... Amount too small to be expressed.

TABLE 7. CANADA, AVERAGE WEEKLY EARNINGS, BY INDUSTRIAL DIVISION, 1981-88

	Industrial Aggregate	Forestry	Mining ¹	Manu- facturing	Construction	Trans- portation, Communi- cation and Other Utilities	Trade	Finance and Real Estate	Community, Business and Personal Service
1981	355.28	452.87	501.38	383.75	521.31	427.47	262.56	353.71	234.86
1982	390.63	486.41	555.20	424.30	558.87	481.64	281.74	389.97	260.57
1983 ²	390.51	522.25	542.65	441.50	503.44	500.99	282.47	400.55	347.88
1984	405.22	540.26	581.80	465.66	491.24	521.38	293.64	417.83	345.28
1985	419.27	543.64	641.00	488.17	505.07	539.74	304.28	432.54	357.07
1986	430.94	564.61	659.93	504.04	510.40	558.80	317.50	452.59	364.54
1987 ^r	442.74	597.24	676.30 ³	519.54	539.37	573.03	325.24	486.56	371.03
1988	464.99	588.51	717.89 ³	540.48	547.14	582.68	341.65	521.89	394.05

Sources: Energy, Mines and Resources Canada; Statistics Canada Catalogue 11-010, Volume 2, January 1989.

¹ Excludes crude petroleum and natural gas. ² New data collection methods and the shift from the 1960 to the 1970 Standard Industrial Classification System reflected in 1983 may affect data continuity. ³ See Note on Table 8 for detail.

^r Revised.

TABLE 8. AVERAGE WEEKLY WAGES AND SALARIES IN THE CANADIAN MINERAL INDUSTRY¹, 1987 AND 1988

	1987			1988		
	Employees	Average Weekly Earnings	Total Wages for Group	Employees	Average Weekly Earnings	Total Wages for Group
	(number)	(\$)	(\$)	(number)	(\$)	(\$)
Metal mines	47 400	708.57	33 586 218.00	48 200	763.47	36 799 254.00
Coal mines	11 100	749.69	8 321 559.00	11 000	778.22	8 560 420.00
Nonmetal mines	12 600	616.45	7 767 270.00	11 500	652.06	7 498 690.00
Quarries and sand pits	11 400	516.92	5 892 888.00	9 500	544.46	5 172 370.00
Smelting and refining	25 500	685.19	17 472 345.00	27 800	701.50	19 501 700.00
Total	108 000	676.30	73 040 280.00	108 000	717.89	77 532 434.00

Source: Statistics Canada, Catalogue #72-002, Employment, Earnings and Hours, August 1987 and 1988. All data apply to the month of June and are based on the 1970 SIC.

¹ Excludes petroleum and natural gas.

Note: Average 1987: \$73 040 280.00 divided by 108 000 = \$676.30

Average 1988: \$77 532 434.00 divided by 108 000 = \$717.89

TABLE 9.
LEADING MINERALS IN THE PROVINCES, TERRITORIES AND CANADA: 1987 AND 1988

	Value of Production			Proportion of Provincial Total
	1987f (\$ million)	1988P	Change 1988/1987	
				(percent)
Newfoundland				
Iron ore	660.5	726.6	10.0	81.8
Zinc	9.7	49.3	405.8	5.5
Gold	7.1	x	x	x
Asbestos	19.2	27.1	41.1	3.0
Stone, sand and gravel	25.0	26.0	4.1	2.9
Total	742.8	888.5	19.6	
Prince Edward Island				
Sand and gravel	2.5	2.6	3.3	100.0
Total	2.5	2.6	3.3	
Nova Scotia				
Coal	178.6	207.8	16.3	45.1
Gypsum	53.5	58.2	8.9	12.6
Cement	46.5	58.2	25.3	12.6
Stone, sand and gravel	47.5	56.3	18.5	12.2
Tin	x	x	x	x
Salt	x	x	x	x
Total	406.6	461.1	13.4	
New Brunswick				
Zinc	229.7	379.0	65.0	45.6
Potash	x	x	x	x
Lead	70.3	73.3	4.2	8.8
Silver	56.2	49.9	-11.2	6.0
Coal	33.3	33.9	1.7	4.1
Total	622.2	831.1	33.6	
Quebec				
Gold	562.3	562.9	0.1	20.7
Iron ore	x	x	x	x
Titanium dioxide	x	x	x	x
Stone	213.1	217.8	2.2	8.0
Iron, remelt	x	x	x	x
Cement	230.0	194.9	-15.3	7.2
Asbestos	171.9	190.3	10.7	7.0
Total	2 780.8	2 716.2	-2.3	
Ontario				
Nickel	869.3	2 166.3	149.2	30.3
Gold	1 007.2	1 002.9	-0.4	14.0
Copper	695.8	824.0	18.4	11.5
Zinc	375.0	548.8	46.4	7.7
Uranium	581.3	523.4	-10.0	7.3
Cement	437.8	449.0	2.6	6.3
Total	5 636.1	7 154.4	26.9	
Manitoba				
Nickel	403.7	1 089.7	169.9	64.8
Copper	160.1	171.2	6.9	10.2
Zinc	81.0	94.2	16.3	5.6
Crude petroleum	109.1	83.1	-23.8	4.9
Gold	70.4	74.2	5.5	4.4
Total	1 000.0	1 680.5	68.0	

TABLE 9. (cont'd)

	Value of Production			Proportion of Provincial Total
	1987 ^f	1988 ^p	Change 1988/1987	
	(\$ million)		(percent)	
Saskatchewan				
Crude petroleum	1 511.5	1 131.6	-25.1	37.2
Potash	x	x	x	x
Uranium	600.9	584.5	-2.7	19.2
Total	3 150.8	3 045.5	-3.3	
Alberta				
Crude petroleum	10 050.3	7 724.2	-23.1	51.8
Natural gas	4 021.7	4 415.2	9.8	29.6
Natural gas by-products	1 809.0	1 559.1	-13.8	10.5
Coal	389.7	456.0	17.0	3.1
Sulphur, elemental	479.4	420.6	-12.3	2.8
Total	17 080.0	14 906.4	-12.7	
British Columbia				
Copper	881.8	1 134.8	28.7	28.4
Coal	947.9	1 100.0	16.1	27.6
Natural gas	366.1	324.4	-11.4	8.1
Crude petroleum	306.0	226.6	-26.0	5.7
Gold	213.6	225.9	5.7	5.7
Total	3 614.0	3 992.1	10.5	
Yukon				
Zinc	187.3	194.9	4.0	41.9
Lead	x	x	x	x
Silver	41.0	84.2	105.5	18.1
Gold	89.0	74.6	-16.2	16.0
Total	437.2	465.5	6.5	
Northwest Territories				
Zinc	328.8	477.6	45.3	51.0
Gold	223.5	197.9	-11.4	21.1
Crude petroleum	144.5	162.6	12.5	17.4
Lead	139.4	67.2	-51.8	7.2
Total	869.3	936.3	7.7	
Canada				
Crude petroleum	12 141.0	9 349.5	-23.0	25.2
Natural gas	4 615.1	4 973.3	7.8	13.4
Nickel	1 273.0	3 256.0	155.8	8.8
Copper	1 923.1	2 317.0	20.5	6.2
Gold	2 204.5	2 215.1	0.5	6.0
Zinc	1 475.2	2 064.6	40.0	5.6
Coal	1 641.3	1 907.8	16.2	5.1
Natural gas by-products	1 876.3	1 609.5	-14.2	4.3
Iron ore	1 395.6	1 388.1	-0.5	3.7
Uranium	1 182.2	1 108.0	-6.3	3.0
Total	36 342.3	37 080.1	2.0	

^f Final; ^p Preliminary; x Confidential.

TABLE 10. CANADA, PRINCIPAL STATISTICS OF THE MINERAL MANUFACTURING INDUSTRIES, 1986

	Mineral Manufacturing Activity								Total Activity ¹		
	Production and Related Workers				Costs						
	Establish- ments	Employees	Person- hours Paid	Wages	Fuel and Electricity	Materials and Supplies	Value of Shipments	Value Added	Employees	Salaries and Wages	Value Added
	(number)	(number)	(000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(number)	(\$000)	(\$000)
Primary metal industries											
Primary steel	58	35 193	76 001	1 258 271	501 083	4 161 518	7 753 946	2 990 359	46 461	1 732 803	3 001 589
Steel pipe and tube	38	3 563	7 857	113 820	18 982	622 518	985 473	329 316	4 829	162 693	330 955
Iron foundries	100	6 345	13 803	181 646	40 890	269 340	812 837	510 255	7 547	228 419	510 681
Smelting and refining	34	20 233	40 523	720 306	408 615	1 892 980	4 744 013	2 379 504	29 058	1 115 267	2 372 789
Aluminum rolling, casting and extruding	71	4 938	10 893	153 133	37 571	946 194	1 399 970	425 073	6 200	205 352	424 927
Copper and alloy rolling, casting and extruding	38	2 626	5 473	66 423	14 414	357 731	521 587	147 486	3 059	83 378	144 012
Metal rolling, casting and extruding, n.e.s.	104	5 251	11 595	139 859	28 527	471 775	891 139	397 298	6 357	178 595	397 072
Total	443	78 149	166 145	2 633 458	1 050 082	8 722 056	17 108 965	7 179 291	103 511	3 706 507	7 182 025
Nonmetallic mineral products industries											
Cement	24	2 205	4 919	85 531	160 698	173 174	831 734	495 505	3 514	136 166	500 220
Lime	14	593	1 271	20 773	42 532	24 567	144 365	76 755	778	28 081	78 025
Concrete pipe	51	1 402	2 994	36 203	5 923	81 782	211 158	121 680	1 706	48 621	122 022
Structural concrete products	61	2 187	4 684	60 506	5 728	102 286	274 693	165 569	2 697	79 150	164 283
Other concrete products	297	4 252	8 738	89 540	15 834	182 752	426 955	230 798	4 771	109 125	235 853
Ready-mix concrete	595	8 779	18 414	241 196	53 971	825 897	1 488 664	609 609	10 422	294 410	626 340
Gypsum products	28	1 568	3 367	44 545	37 801	212 318	522 556	272 930	2 195	65 837	283 901
Clay products (domestic)	36	1 210	2 642	32 359	28 940	26 311	182 007	124 777	1 605	46 710	129 418
Clay products (imported)	56	1 806	3 737	40 066	8 380	41 410	147 035	97 288	2 165	49 930	98 625
Primary glass and glass containers	18	5 863	12 329	171 527	65 064	190 242	736 912	482 326	7 722	241 583	482 438
Glass products	165	4 852	9 890	117 548	15 346	324 266	632 933	290 805	5 726	147 903	294 876
Abrasives	30	1 347	2 724	33 943	32 342	99 694	227 745	96 953	1 827	50 563	100 513
Refractory products	25	1 035	2 175	26 836	8 080	79 390	179 184	93 707	1 616	44 820	99 872
Mineral insulating products	46	2 181	4 680	62 477	33 687	153 706	353 846	165 289	3 464	109 231	237 702
Other nonmetallic mineral products	155	2 113	4 315	43 653	9 774	86 245	210 580	117 260	2 447	54 272	124 530
Total	1 601	41 393	86 879	1 106 703	524 100	2 604 040	6 570 367	3 441 251	52 655	1 506 402	3 578 618

Fabricated Metal Products Industries

Power boiler and heat exchanger industry	42	3 065	6 448	81 367	4 398	177 623	540 845	350 480	4 990	144 659	357 657
Fabricated structural metal products industries	415	15 229	31 880	390 012	27 363	949 990	2 040 980	1 080 636	19 213	418 044	1 111 347
Ornamental and architectural metal products industries	790	14 314	30 265	295 982	18 883	799 284	1 527 796	715 849	17 462	392 502	722 209
Stamped and pressed metal products industries	983	25 765	54 647	589 195	69 379	2 782 148	4 504 885	1 678 961	31 584	790 332	1 729 180
Wire and wire products industries	331	11 886	24 969	291 528	40 678	970 957	1 832 669	822 648	15 262	400 766	848 825
Hardware, tool and cutlery industry	913	18 282	38 682	435 083	20 324	569 226	1 538 296	961 056	21 164	529 986	993 378
Heating equipment industry	174	4 390	9 248	86 168	5 223	271 588	531 958	258 746	5 779	122 069	262 637
Machine shop industry	1 475	16 319	33 820	363 226	16 694	428 340	1 074 230	630 449	17 259	394 824	636 621
Other metal fabricating industries	536	12 270	25 803	277 264	30 850	706 299	1 432 641	706 519	15 170	371 742	729 598
Total	5 659	121 520	255 762	2 809 825	233 792	7 655 455	15 024 300	7 205 344	147 883	3 564 924	7 391 452
Petroleum and coal products industries											
Petroleum refining products	31	5 227	11 673	232 528	300 134	12 395 312	15 145 368	1 722 197	13 287	608 838	1 724 990
Lubricating oils and greases	35	603	1 345	18 449	5 575	207 881	295 038	80 109	1 001	31 742	82 467
Other petroleum and coal products	60	529	1 104	14 179	10 539	195 098	315 959	98 786	778	23 840	98 856
Total	126	6 359	14 122	265 156	316 248	12 798 291	15 756 365	1 901 092	15 066	664 420	1 906 313
Total, mineral manufacturing industries	7 829	247 421	522 908	6 815 142	2 124 222	31 779 842	54 459 997	19 726 978	319 115	9 442 253	20 058 408

1 Total activity includes sales and head offices.

n.e.s. Not elsewhere specified.

Note: Totals may not add due to rounding.

TABLE 11. CANADA, PRINCIPAL STATISTICS OF THE MINERAL MANUFACTURING INDUSTRIES¹, 1980-86

	Mineral Manufacturing Activity									
	Production and Related Workers				Costs				Total Activity ²	
	Establishments	Employees	Person-hours Paid	Wages	Fuel and Electricity	Materials and Supplies	Value of Shipments	Value Added	Employees	Salaries and Wages
	(number)	(number)	(000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(number)	(\$000)
1980	7 229	270 529	565 988	4 991 451	1 411 101	28 394 177	43 895 507	14 758 224	366 120	7 262 688
1981	7 196	261 364	546 732	5 393 636	1 720 151	34 570 420	51 870 979	16 791 049	361 883	8 076 300
1982	5 687	229 518	475 378	5 333 201	1 728 740	34 241 605	50 045 037	14 497 245	321 785	8 126 238
1983	7 370	216 944	447 947	5 420 307	1 905 777	34 720 416	52 773 875	15 861 491	301 112	8 143 674
1984	7 511	223 816	470 367	5 948 626	2 125 032	37 738 117	57 207 764	17 980 271	304 309	8 719 151
1985	7 625	238 544	506 377	6 507 081	2 229 270	39 497 925	61 241 939	19 305 730	313 850	9 271 447
1986	7 829	247 421	522 908	6 815 142	2 124 222	31 779 842	54 459 997	19 726 978	319 115	9 442 253

¹ All years have been revised to include the Fabricated Metal Products Industry. ² Total activity includes sales and head offices.

TABLE 12. CANADA, CENSUS VALUE ADDED, TOTAL ACTIVITY, MINING AND MINERAL MANUFACTURING INDUSTRIES¹, 1980-86

	1980	1981	1982	1983	1984	1985	1986
	(\$ million)						
Mining							
Metallic minerals							
Gold	588.8	519.0	566.2	693.6	660.8	635.3	975.3
Silver-lead-zinc	513.6	380.3	351.1	294.2	465.7	275.3	332.2
Nickel-copper-zinc	2 992.2	2 007.9	1 144.9	1 567.3	2 008.1	1 868.5	1 712.9
Iron	1 005.0	1 036.0	761.4	644.6	681.4 ^r	817.1	713.8
Uranium	559.3	610.3	600.1	496.9	772.5	813.1	802.0
Miscellaneous metal mines	243.3	150.2	73.7	33.2	72.1	65.4	54.5
Total	5 902.2	4 703.7	3 497.4	3 729.8	4 660.6	4 474.7	4 590.7
Industrial minerals							
Asbestos	473.4	431.5	267.3	252.7	252.7	217.6	157.1
Gypsum	26.9	31.3	26.6	35.1	40.2	50.7	56.6
Peat	42.7	47.8	41.1	43.0	47.1	63.0	74.6
Potash	900.4	889.7	488.5	455.4	717.1	428.8	396.4
Sand and gravel	92.0	98.3	75.6	90.3	104.9	132.9	220.0
Stone	123.4	122.5	109.4	119.5	160.1	207.5	277.6
Miscellaneous nonmetals	152.8	171.0	183.5	201.8	240.5	226.8	289.1
Total	1 811.6	1 792.1	1 192.0	1 200.0	1 562.6	1 327.3	1 471.3
Fuels							
Coal	621.6	671.1	838.0	911.1	1 314.2	1 264.5	1 110.4
Petroleum and natural gas	14 917.3	15 924.6	18 899.8	22 171.3	25 008.2	25 428.7	15 044.3
Total	15 538.9	16 595.7	19 737.8	23 082.4	26 322.4	26 693.2	16 154.7
Total mining industry	23 252.7	23 091.5	24 427.2	28 012.2	32 545.6	32 495.2	22 216.7
Mineral manufacturing							
Primary metal industries							
Primary steel	2 537.9	2 750.9	2 149.9	2 464.9	2 939.6	3 105.9	3 001.6
Steel pipe and tube	297.6	378.3	320.3	213.4	389.6	388.2	331.0
Iron foundries	266.9	266.0	279.9	326.0	447.7	471.5	510.7
Smelting and refining	1 849.2 ^r	1 808.9	1 493.0	1 912.4	2 236.9	2 202.4	2 372.8
Aluminum rolling, casting and extruding	273.5	292.8	289.9	328.2	394.7	384.3	424.9
Copper and alloy rolling, casting and extruding	103.7	129.3	101.6	117.7	147.8	134.7	144.0
Metal rolling, casting and extruding, n.e.s.	203.6	210.4	169.2	234.1	323.1	355.2	397.1
Total	5 532.4 ^r	5 836.6	4 803.8	5 596.7	6 879.4	7 042.2	7 182.0
Nonmetallic mineral products industries							
Cement industries	357.3	421.4 ^r	387.4	407.5	421.9	490.7	500.2
Lime industries	59.5	62.8	60.1	66.2	75.4	70.1	78.0
Concrete products industries	323.9 ^r	378.5	349.7	333.6	376.5	463.9	522.2
Ready-mix concrete industries	352.4	430.1	388.6	405.0	397.5	455.3	626.3
Clay products (domestic clay)	84.6	82.0	57.1	78.2	87.7	92.9	129.4
Clay products (imported clay)	51.6	50.9	37.9	37.2	37.3	41.4	98.6
Glass industries	308.1	364.6	339.6	403.8	460.9	466.4	482.4
Glass products industries	143.6	141.0	144.9	209.8	258.1	320.7	294.9
Abrasive industries	92.1	95.9	80.4	91.4	101.9	97.8	100.5
Other nonmetallic mineral products industries	481.6 ^r	483.3 ^r	426.7	487.6	571.5	672.4 ^r	746.0
Total	2 254.7 ^r	2 510.5 ^r	2 272.4	2 520.3	2 788.7	3 171.8	3 578.6

TABLE 12. (cont'd.)

	1980	1981	1982	1983	1984	1985	1986
	(\$ million)						
Fabricated metal products industries							
Power boiler and heat exchanger industry	304.2	385.8	310.0	319.1	298.1	351.1	357.7
Fabricated structural metal products industries	691.1	829.1	976.1	795.3	817.4	930.9	1 111.3
Ornamental and architectural metal products industries	598.3	622.7	529.5	491.2	519.9	608.4	722.2
Stamped and pressed metal products industries	1 267.7	1 447.1	1 265.1	1 303.6	1 417.2	1 612.4	1 729.2
Wire and wire products industries	618.6	671.7	532.9	554.6	704.2	812.9	848.8
Hardware, tool and cutlery industry	682.4	714.0	653.8	650.7	786.7	932.0	993.4
Heating equipment industry	191.3	206.8	188.5	182.0	162.6	243.9	262.6
Machine shop industry	398.8	449.9	444.7	451.3	549.5	611.2	636.6
Other metal fabricating industries	808.3	810.6	667.2	690.5	745.5	735.0	729.6
Total	5 560.6	6 137.7	5 567.8	5 438.3	6 001.1	6 837.6	7 391.5
Petroleum and coal products industries							
Petroleum refining	1 750.1	2 641.5	2 108.4	2 563.7	2 498.2	2 478.8	1 725.0
Manufacturers of lubricating oil and greases	26.7	35.0	31.7	24.8	56.1	75.7	82.5
Other petroleum and coal products industries	36.0	39.3	39.9	52.6	42.1	41.0	98.9
Total	1 812.8	2 715.8	2 180.0 ^r	2 641.1	2 596.4	2 595.5	1 906.3
Total mineral manufacturing	15 160.5	17 200.6	14 824.0	16 196.4	18 265.6	19 647.0	20 058.4
Total mining and mineral manufacturing	38 413.2	40 292.1	39 251.2	44 208.6	50 811.2	52 142.2	42 275.1

¹ The Fabricated Metal Products Industry has been added.

n.e.s. Not elsewhere specified; ^r Revised.

Note: Totals may not add due to rounding.

TABLE 13. CANADA, EMPLOYMENT, SALARIES AND WAGES IN THE MINERAL MANUFACTURING INDUSTRIES¹, 1980-86

	Unit	1980	1981	1982	1983	1984	1985	1986
Primary metal industries								
Production and related workers	Number	97 530	92 337	82 186	77 579	81 454	80 959	78 149
Salaries and wages	\$000	1 980 423	2 120 019	2 157 186	2 216 614	2 564 420	2 660 807	2 633 458
Annual average salary and wage	\$	20 306	22 960	26 248	28 572	31 483	32 866	33 698
Administrative and office workers	Number	31 210 ^r	32 831	31 029	27 773	27 496	25 849	25 362
Salaries and wages	\$000	787 022	938 790	1 010 847	964 429	1 033 620	1 047 040	1 073 049
Annual average salary and wage	\$	25 217 ^r	28 595	32 577	34 725	37 592	40 506	42 309
Total primary metal industries								
Employees	Number	128 740 ^r	125 168	113 215	105 352	108 950	106 808	103 511
Salaries and wages	\$000	2 767 445	3 058 809	3 168 033	3 181 043	3 598 040	3 707 847	3 706 507
Annual average salary and wage	\$	21 496 ^r	24 438	27 982	30 194	33 025	34 715	35 808
Nonmetallic mineral products industries								
Production and related workers	Number	40 799	40 145	33 997	34 097	36 155	38 763	41 393
Salaries and wages	\$000	743 254	818 566	751 915	800 755	883 604	1 001 780	1 106 703
Annual average salary and wage	\$	18 217	20 390	22 117	23 485	24 439	25 844	26 736
Administrative and office workers	Number	15 287	15 124	13 952	13 353	12 738	11 842	11 262
Salaries and wages	\$000	333 815	369 899	383 405	391 901	394 619	397 129	399 699
Annual average salary and wage	\$	21 837	24 458	27 480	29 349	30 980	33 536	35 491
Total nonmetallic mineral products								
Employees	Number	56 086	55 269	47 949	47 450	48 893	50 605	52 655
Salaries and wages	\$000	1 077 069	1 188 455	1 135 320	1 192 656	1 278 223	1 398 911	1 506 402
Annual average salary and wage	\$	19 204	21 503	23 678	25 135	26 143	27 644	28 609
Fabricated metal products industries								
Production and related workers	Number	123 923	120 450	105 214	97 851	99 669	112 386	121 520
Salaries and wages	\$000	2 064 088	2 205 852	2 158 078	2 138 834	2 237 775	2 578 635	2 809 825
Annual average salary and wage	\$	16 656	18 313	20 511	21 858	22 452	22 944	23 122
Administration and office workers	Number	37 325	38 382	33 906	31 542	29 533	27 312	26 363
Salaries and wages	\$000	812 535	937 555	897 400	876 572	876 279	863 993	755 099
Annual average salary and wage	\$	21 769	24 427	26 467	27 791	29 671	31 634	28 642
Total fabricated metal products industries								
Employees	Number	161 248	158 832	139 120	129 393	129 202	139 698	147 883
Salaries and wages	\$000	2 876 623	3 143 407	3 055 478	3 015 406	3 114 054	3 442 628	3 564 924
Annual average salary and wage	\$	17 840	19 791	21 963	23 304	24 102	24 643	24 106
Petroleum and coal products industries								
Production and related workers	Number	8 277	8 432	8 121	7 417	6 538	6 436	6 359
Salaries and wages	\$000	203 686	249 199	266 022	264 104	262 827	265 859	265 156
Annual average salary and wage	\$	24 609	29 554	32 757	35 608	40 200	41 308	41 698
Administrative and office workers	Number	11 769	14 182	13 380	11 500	10 726	10 303	8 707
Salaries and wages	\$000	337 865	436 430	501 385	490 465	466 006	456 202	399 264
Annual average salary and wage	\$	28 708	30 773	37 473	42 649	43 446	44 279	45 856
Total petroleum and coal products industries								
Employees	Number	20 046	22 614	21 501	18 917	17 264	16 739	15 066
Salaries and wages	\$000	541 551	685 629	767 407	754 569	728 833	722 061	664 420
Annual average salary and wage	\$	27 015	30 319	35 692	39 888	42 217	43 136	44 101
Total mineral manufacturing industries								
Production and related workers	Number	270 529	261 364	229 518	216 944	223 816	238 544	247 421
Salaries and wages	\$000	4 991 451	5 393 636	5 333 201	5 420 307	5 948 626	6 507 081	6 815 142
Annual average salary and wage	\$	18 451	20 636	23 237	24 985	26 578	27 278	27 545
Administrative and office workers	Number	95 591	100 519	92 267	84 168	80 493	75 306	71 694
Salaries and wages	\$000	2 271 237	2 682 664	2 793 037	2 723 367	2 770 525	2 764 366	2 627 111
Annual average salary and wage	\$	23 760	26 688	30 271	32 356	34 419	36 708	36 643
Total mineral manufacturing industries								
Employees	Number	366 120	361 883	321 785	301 112	304 309	313 850	319 115
Salaries and wages	\$000	7 262 688	8 076 300	8 126 238	8 143 674	8 719 151	9 271 447	9 442 253
Annual average salary and wage	\$	19 837	22 317	25 254	27 045	28 652	29 541	29 589

¹ The Fabricated Metal Products Industry has been added.^r Revised.

EMPLOYMENT TRENDS

Tables A and B provide updated information on employment in the mineral industry by commodity group and by province.

TABLE A. Canada, Employment by Mineral Industry¹

	December 1986	December 1987	October 1988	November 1988	December 1988
	(000 persons)				
Metal mines	47.0	46.3	45.9	45.9	45.6
Nonmetal mines	11.5	11.3	11.4	11.1	10.9
Coal mines	11.9	10.7	10.9	10.9	10.9
Total mines	70.4	68.3	68.2	67.9	67.4
Primary metal industries ²	100.1	100.4	100.7	100.2	99.3

Source: Statistics Canada 72-002: Employment, Earnings and Hours.

¹ Includes salaried and hourly paid employees in all provinces and territories. ² Includes iron and steel mills; steel pipe and tube mills; iron foundries; smelting and refining; aluminum rolling, casting and extruding.

TABLE B. Canada, Employment by Province, December 1988

	Metal Mines	Nonmetal Mines	Mines, Quarries, Oil Wells
	(000 employees)		
Newfoundland	..	..	3.2
Nova Scotia	..	..	5.1
New Brunswick	..	..	3.0
Quebec	9.7	3.1	17.8
Ontario	18.4	1.5	31.2
Manitoba	3.5	..	4.1
Saskatchewan	..	3.4	7.9
Alberta	..	..	63.9
British Columbia	6.1	..	14.5
Yukon	..	..	1.4 ¹
Northwest Territories	..	..	..
Total Canada	45.6	10.9	153.9

Source: Statistics Canada 72-002: Employment, Earnings and Hours.

¹ Yukon Bureau of Statistics.

.. Not available.

METALLIC MINERALS AND PRODUCTS

Nonferrous and Precious Metals Prices

Beginning with this issue, we are introducing a new price table for the nonferrous and precious metals group. It will appear in this section each month to accompany the articles on nonferrous and precious metals.

For aluminum, copper, lead, nickel, zinc, gold and silver, the price ranges and monthly averages will be presented for the month just ended. In addition, the table will also show historical highs and lows.

NONFERROUS AND PRECIOUS METALS PRICES¹

	1980s Extremes				May 1989		
	Low		High		Low	High	Average
	(US\$/lb.)		(US\$/lb.)		(US\$/lb.)		
Aluminum	0.41	03/06/82	1.95	13/06/88	0.91	1.12	1.03
Copper	0.56	18/10/84	1.68	08/12/88	1.15	1.35	1.24
Lead	0.15	18/03/86	0.35	20/05/87	0.28	0.30	0.29
Nickel	1.42	26/11/82	10.84	28/03/88	5.60	6.60	6.12
Zinc	0.25	31/10/85	0.97	02/03/89	0.70	0.77	0.74
	(US\$/troy oz.)		(US\$/troy oz.)		(US\$/troy oz.)		
Gold	285.00	26/02/85	502.75	14/12/87	359.25	379.65	371.35
Silver	4.86	20/05/86	10.92	27/04/87	5.09	5.67	5.44

Source: Nonferrous Division, Mineral Policy Sector.

¹ Prices used are the London Metal Exchange (LME) settlement prices for the nonferrous metals and the London Bullion Market Association (LBMA) morning fix for the precious metals.

Aluminum G. Bokovay (613) 992-4093

Aluminum prices, strengthened at the beginning of May, reaching US\$112.0¢/lb. on the London Metal Exchange (LME) on May 12, but eased during the remainder of the month to 91.2¢/lb. The average LME price for the month was 102.6¢ compared to 96.5¢ in April and 108.8¢ in January.

The International Primary Aluminum Institute (IPAI) has reported that aluminum inventories (including all forms of aluminum scrap, primary and secondary ingot, metal in process and finished mill products) decreased slightly in March 1989 to 3.149 Mt from 3.192 Mt in February. The IPAI also reported that western world average daily primary aluminum output increased to 38 600 t from 38 400 t in March. Daily average output in April 1988 was 36 400 t.

In May, Koninklijke Nederlandsche Hoogovens en Staalfabrieken NV announced that it would invest \$145.7 million in the new Alouette aluminum smelter project planned for Sept-Îles, Quebec. This investment will enable Hoogovens to earn a 15% share of the project, the initial phase of which will have a capacity of 215 000 t/y and cost \$1 billion. Other partners in the project include Société générale de financement du Québec with 20%, Vereinigte Aluminium-Werke AG (VAW) 23%, Austria Metall A.G. 22% and Kobe Steel, Ltd. 20%. It is expected that construction will begin this summer and that production will begin in 1992.

During May, Alcan Aluminium Limited announced that its U.S. subsidiary, Alcan Aluminium Corporation, would invest US\$175 million over the next three years to upgrade its sheet rolling mill in Oswego, N. Y. The investment includes modernization of the plant's hot rolling mill, a new melting and casting centre, a pusher furnace, a high speed slitting line and a new roll grinder. Also in May, employees at Alcan Aluminum Corp.'s Seabree, Kentucky smelter ratified a new 3½ year labour contract, five months before the expiration of the old contract.

On May 21, it is reported that the Government of Bahrain had approved a US\$1 billion expansion for the Aluminium Bahrain B.S.C. (ALBA) smelter. The expansion, together with an ongoing modernization program, will increase capacity from 170 000 t/y to 400 000 t/y.

Copper

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METAL PRICES US CENTS/LB.

	London Metal Exchange (LME) Grade A Cash Settlement May 2-31	Commodities Exchange, Inc. (COMEX) 1st Position May 1-30
High	135.0	136.7
Low	114.9	108.6
Average	124.4	121.1
Year to date:		
High	161.0	158.7
Low	114.9	108.6
Average	141.7	137.8

The backwardation in LME three months copper prices ended in mid-May, but still averaged as backwardation of US0.5¢/lb. for the entire month. The LME 15 month backwardation touched a low of US0.9¢ /lb. in the last week of May, averaging US10¢ /lb.

Between April 21 and May 26 the combined LME and COMEX stocks increased from 125 470 t to 135 559 t, after peaking at an end of week high of 154 767 t on May 12. Stocks on January 6, 1989 were 79 763 t.

In late November 1988, Noranda Inc. filed a notice of its intention to purchase up to 10% or an additional 7.4 million common shares of Falconbridge Limited. Purchases were not to exceed 5% of Falconbridge's common stock in any 90 day period and purchases could take place between November 28, 1988 and May 26, 1989. The notice did not oblige Noranda to purchase any Falconbridge shares. At that time, Noranda owned 19.9% of Falconbridge common stock.

Since that time, Noranda has reportedly purchased less than 200 000 shares of Falconbridge stock and owns about 20% of the common shares. On May 26, 1989, Noranda Inc. again notified the exchanges that it might purchase an additional 10% or about 7.5 million common shares of Falconbridge stock. The purchase is again subject to the condition that purchases would not exceed 5% in any 90 day period. As before, Noranda is not bound to purchase any Falconbridge stock during the period of notification that lasts until November 25, 1989.

At Noranda's CCR Division, the labour contract with the United Steelworkers of America expired at midnight on May 30. As of the end of the month, negotiations and production at the copper refinery continued.

In the United States, ASARCO Incorporated and the United Steelworkers of America completed preliminary labour contract talks by May 18. The parties agreed to resume talks on June 12 on a labour contract to replace the existing one expiring June 30. About 2 000 employees at ASARCO are covered by the contract.

Also in the United States, Magma Copper Company and the United Steel Workers of America were to have started contract talks on May 25, but they were delayed until the start of June. About 2700 employees are covered by the contract which ends on July 1.

The status of these labour negotiations is being watched closely by the industry. Interruption of supplies from one or more of these producers would counter the recent trend of declining copper prices.

At the annual shareholders meeting, Geddes Resources Limited updated events at its Windy Craggy deposit, located in the extreme northwestern portion of British Columbia. Exploration expenditures to date have cost over \$20 million. The geologically inferred tonnage in the central portion of the orebody is estimated at about 135 Mt of which between 68 and 90 Mt are initially mineable. The 90 Mt portion of reserves grades 2.4% copper. At a production rate of 13 600 to 18 000 t/d, a life of 12 to 15 years has been indicated. Further areas to the north and south remain to be drilled.

A 22 t metallurgical test sample was taken. Preliminary results show 90% copper recovery for a concentrate grading 26 to 28% copper. The company has begun examination of the possible mining of the deposit by both open pit and underground methods. Mine access from a paved highway has been studied: the preliminary results indicate that the cost of a 100 km access road would be in the order of \$65 million. Northgate Exploration Limited now owns 31% of Geddes Resources.

Subject to shareholder agreement, RTZ Corporation PLC expects to finalize its purchase of the mineral interests of The British Petroleum Company p.l.c. by June 30. By paying US\$4.3 billion, RTZ will double its copper and gold output, even without the 49% interest in Olympic Dam. Western Mining Corporation Limited has the first right of refusal on BP's \$600 million share in the Olympic Dam operation.

Gold

D. Law-West (613) 992-4327

Gold prices continued to weaken during the month, falling to a three year low of US\$359.25 before rebounding above the \$360 mark. The monthly average price was \$371.74 compared to \$384.72 in April. The average gold price for the year to date is \$388.02.

The Misima mine in Papua New Guinea (PNG), developed by Placer Pacific Limited (owned 75.8% by Placer Dome Inc. of Canada), poured its first gold bullion bar on May 11th. Production is expected to be 400 000 oz. of gold and 2.6 million oz. of silver during the first 14 months of production. The new open pit mine was completed several months ahead of schedule at a cost of C\$242 million. Proven and probable reserves including dilution have been calculated at 62 Mt grading .0403 oz./t of gold and .612 oz./t of silver. Net cash cost of production is US\$110/oz. of gold.

The PNG government has given approval for development of the Porgera gold deposit. The huge project is expected to take over three years to complete at a cost of nearly C\$900 million. It will employ some 1200 people and produce an average of 800 000 oz./y of gold during the first six years of production. The mineable reserves are estimated at 66.2 Mt grading .190 oz./t. Production costs have been calculated at US\$105 /oz.

In South Africa, the world's largest gold producer, several high cost mines have announced possible closure due to the recent low gold prices. Rand Mines Limited is facing a decision concerning East Rand Proprietary Mines, Limited and Durban Roodepoort Deep, Ltd. and has requested government assistance in order to continue mining. South African analysts estimate that at current prices, 13 out of 59 gold mines are now losing money before capital expenses and that 21 are losing money after capital expenses are accounted for.

Lead

D. Law-West (613) 992-4327

Lead prices strengthened in May and averaged US29.2¢/lb. on the London Metal Exchange versus 27.6¢ in April. This increase is linked to the rise in the U.S. dollar versus sterling. United States domestic lead prices continued to decline to US36.5¢/lb. from 37.5¢ in April.

Noranda Minerals Inc. has announced plans to replace soil contaminated with lead near its Murdochville operations. The five-year, \$1 million project involves removing and replacing any soil in the town which has lead levels greater than 500 parts per million. Most of the lead in the soil can be traced to lead emitted from the smelter.

The Doe Run Company has reopened its Brushy Creek base metal mine near Bunker, Missouri. Initial production will be 1400 t/d comprising 1100 t/d of lead/zinc ore and 300 t/d of copper ore. Eventually, the company plans to increase production to the design capacity of 5000 t/d.

Britannia Refined Metals Ltd. announced plans to close its 170 000 t/y lead refinery at Northfleet, England, for a week in both July and August. The closures, due to supply problems at Mount Isa Mines Ltd. in Australia, will reduce annual lead output by 8000 t.

M.I.M. Holdings Limited will spend some A\$65 million to build a new 60 000 t/y lead smelter at the Mt. Isa base metal mine in northwestern Queensland. The company plans to use ISASMELT technology which it has tested successfully over the past few years. The new technology incorporates a high intensity smelting process which is said to be cheaper to build and to operate. The new facilities will be built during the next 18 months. Lead output from the Mt. Isa and the new Hilton mines will be raised to 210 000 t/y from 180 000 t and zinc production will increase to 250 000 t from 200 000 t.

Nickel

R. Telewiak (613) 992-4481

Production of ore commenced during May at the relatively small, high grade Redstone nickel mine near Timmins, Ontario. The operation is a joint venture of Timmins Nickel Inc. and BHP-Utah Mines Ltd. The companies are planning to produce about 10 million lb./y of nickel contained in concentrate. Sherritt Gordon Limited has the contract to purchase the concentrate which will be processed at the company's refinery in Fort Saskatchewan, Alberta. Reserves at the underground mine have been outlined at 453 000 t grading 2.9% nickel.

In the Philippines, the Justice Department ruled that Dallhold Nickel Management Pty. Ltd. would not be able to purchase the nickel complex of Nonoc Mining & Industrial Corporation, since Dallhold is 100% foreign owned. Philippine law limits foreign ownership of such assets to 40%. Nonoc's former owner, Jesus Cabarrus, has petitioned the Philippine Committee on Privatization suggesting that his group be permitted to re-acquire the facility.

Demand for nickel continues to remain strong. Production of stainless steel, which accounts for about 60% of nickel usage, continues to increase in Japan and Western Europe but is declining in the United States. Overall, nickel demand in the first five months of 1989 appears to be little changed from the record levels achieved during the same period last year.

NEW PUBLICATIONS

The following publications were published by Energy, Mines and Resources Canada and copies can be obtained from:

Canadian Government Publishing Centre
Supply and Services Canada
Ottawa, Ontario
K1A 0S9
Tel: (613) 997-2560

MR 220 - Mining and Mineral Processing Operations in Canada

This report is a compilation of information relating to mines and processing facilities in Canada.

Reference: Catalogue No. M38-2/220
ISBN 0-660-54783-X

MR 221 - Canadian Mines: Perspective from 1988

The components of this annual assessment provide governments with information on Canada's future ability to produce mineral commodities.

Reference: Catalogue No. M38-2/221
ISBN 0-660-54792-9

Mineral Report No. 37 - Canadian Minerals Yearbook

This edition reports on the activity of the mineral industry during 1988.

Reference: Catalogue No. M38-5/37E
ISBN 0-660-13150-1

The following publication is available from:

Publication Distribution Office
Mineral Policy Sector
Energy, Mines and Resources Canada
6th Floor, 580 Booth Street
Ottawa, Ontario
K1A 0E4
Tel: (613) 992-1108

Platinum

This booklet provides an overview of the platinum metals industry and is intended to support and encourage interest in PGE exploration and development in Canada.

Reference: Catalogue No. M37-40/1989E
ISBN 0-662-17038-5

