CANADA

THE MISCELLANEOUS METAL MINING INDUSTRY

1955

DOMINION BUREAU OF STATISTICS
Industry and Merchandising Division
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NOTICE

The annual reports prepared by the Industry and Merchandising Division of the Bureau of Statistics are divided into 3 volumes, as follows: **Volume I** – The Primary Industries, including mining, forestry and fisheries; **Volume II** – Manufacturing; **Volume III** – Merchandising and Services. The volumes are made up of parts, and the parts in turn are subdivided according to the industries which they comprise.

Volume I consists of the following parts:

Part I – Mineral Statistics
Part II – Forestry Statistics – Operations in the Woods
Part III – Fisheries Statistics

Part I includes the following reports which constitute the complete series on Mineral Statistics of Canada. Individual reports are issued as the information becomes available; they are arranged in a form suitable for binding.

A – General Review of the Mining Industry, 50¢
B – The Gold Mining Industry, 50¢
C – The Silver-Lead-Zinc Mining Industry, 25¢
D – The Nickel-Copper Mining, Smelting and Refining Industry, 25¢
E – The Miscellaneous Metal Mining Industry, 25¢
F – The Smelting and Refining Industry, 25¢
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S – The Sand and Gravel Industry, 25¢
T – The Stone Industry, 25¢
U – Contract Drilling in the Mining Industry, 25¢

THE MISCELLANEOUS METAL MINING INDUSTRY

1955

Including

Aluminum	Mercury
Antimony	Molybdenum
Barium	Pitchblende
Beryllium	Selenium
Bismuth	Tantalum-Columbium
Cadmium	Tellurium
Calcium	Thallium
Cerium	Tin
Chromium	Titanium (ilmenite)
Iron	Tungsten
Indium	Vanadium
Magnesium	Zirconium
Manganese	

The mining of certain metal-bearing ores, other than those commonly classified as gold, silver, copper, nickel, cobalt, lead and zinc, have been grouped, for statistical purposes, as a single industry by the Dominion Bureau of Statistics. Their production in some instances is confined to a few operators and the annual extraction of certain types of ores often fluctuates in an erratic manner according to demand and supply. Included in this report, with the statistics relating to the Canadian production of these ores or metals, are notes and statistical data pertaining to various rare or semi-rare metals of metalliferous ores produced in other countries. Metals and metal-bearing ores produced in Canada during 1955 and classified as miscellaneous, include antimony, bismuth, cadmium, calcium, cerium, iron ore, magnesium, mercury, molybdenite, pitchblende, selenium, tellurium, titanium ore, tin, tantalum and tungsten concentrates. In addition to particulars relating to these metals or minerals, the bulletin contains notes of a summary nature on aluminum, beryllium, columbium, vanadium and a few of the rarer metals.

It should be noted that some of the metals listed above as Canadian products, and including bismuth, cadmium, selenium and tellurium, represent by-products recovered in the refining of lead, zinc or copper and, for this reason, the statistics of employment, etc., relating to their production in Canada are included with those of either the silver-lead-zinc mining industry, the copper-gold-silver mining industry or the smelting and refining industry.

In 1955 the data on the iron ore mining industry has been excluded from the Miscellaneous Metal Mining Industry, thus the figures are not directly comparable with those of the preceding years.

Of the 223 active establishments in the Miscellaneous Metal Mining Industry, there were 13 which made shipments of ore or metal-bearing concentrates. The average number of employees was 2,826 to whom $12,663,195 were paid as salaries and wages. Fuel cost $1,597,298 and 26,508,180 kwh. of electricity were purchased for $247,138. Process supplies, containers, freight and treatment charges amounted to $4,953,491.

TABLE 1. Principal Statistics of the Miscellaneous Metal Mining Industry, Significant Years, 1921-1955

Year	Establishments	Employees	Earnings	Cost of fuel and electricity	Cost of process supplies and containers	Gross value of products	Net value[1] of production
	No.	No.	$	$	$	$	$
1921	4	44	68,606	45,376	N.A.	230,164	N.A.
1929	8	94	42,837	10,217	"	6,400	"
1931	7	32	25,694	576	"	13,434	"
1933	5	24	14,275	1,178	"	343	"
1937	15	121	155,191	15,668	17,466	86,040	52,655
1939	31	331	455,278	92,405	81,991	524,977	349,404
1941	47	725	1,141,244	359,005	217,494	3,428,886	2,618,483
1944	27	1,385	2,809,013	951,929	657,430	5,360,993	3,303,143
1946	21	1,037	2,338,442	739,531	670,648	7,187,445	3,708,109
1949	21	3,275	8,894,642	1,160,558	1,286,989	21,466,327	15,689,997
1951	31	3,891	12,251,755	1,864,309	3,299,651	31,474,736	21,765,843
1952	47	5,163	18,370,772	2,582,194	5,758,407	39,643,078	25,523,464
1953	54	5,784	23,023,639	3,132,808	6,907,890	51,076,472	35,136,282
1954[2]	180	6,494	24,603,658	3,553,358	10,174,222	83,379,952	66,138,130
1955[3]	223	2,826	12,663,195	1,844,436	4,355,385	35,103,488	28,305,111

1. Gross value of production, less the value of fuel, electricity, process supplies, containers, freight and treatment charges.
2. Data for 1954 includes uranium mining which was not shown in preceding years.
3. Iron ore data excluded in 1955, but included in preceding years.

TABLE 2. Employees and Their Earnings in the Miscellaneous Metal Mining Industry, 1951-1955

Year	Number of employees					Number of man-hours worked (all employees)	Earnings		
	Office and administrative		Workmen		Total		Office and administrative	Workmen	Total
	Male	Female	Male	Female					
							$	$	$
1951	299	31	3,521	40	3,891	7,993,679	1,232,628	11,019,127	12,251,755
1952	530	48	4,539	46	5,163	13,951,913	2,244,224	16,126,548	18,370,772
1953	593	74	5,076	41	5,784	13,230,772	3,042,167	19,981,472	23,023,639
1954	685	97	5,663	49	6,494	13,333,113	3,086,429	21,517,229	24,603,658
1955[1]	542	55	2,215	14	2,826	6,787,269	2,720,159	9,943,036	12,663,195

1. Iron ore mining data excluded in 1955.

TABLE 3. Average Number of Workmen, by Months, 1954 and 1955

Month	1954						1955[1]					
	Surface		Underground	Mill		Total	Surface		Underground	Mill		Total
	Male	Female		Male	Female		Male	Female		Male	Female	
January	2,466	42	2,380	347	4	5,239	900	7	562	162	2	1,633
February	2,396	43	2,390	351	4	5,184	928	7	615	164	2	1,716
March	2,406	47	2,426	357	5	5,241	914	7	624	154	2	1,701
April	2,482	49	2,356	352	5	5,244	958	7	617	177	2	1,761
May	2,818	45	2,293	364	4	5,524	1,206	10	605	178	2	2,001
June	3,227	37	2,282	394	4	5,944	1,403	8	627	210	2	2,250
July	3,339	44	2,190	415	5	5,993	1,510	7	728	244	2	2,491
August	3,525	43	2,199	415	5	6,187	1,540	8	772	298	2	2,620
September	3,548	46	2,195	422	5	6,216	1,536	10	814	311	4	2,675
October	3,364	44	2,207	425	5	6,045	1,503	8	823	320	4	2,658
November	3,145	42	2,220	407	5	5,819	1,413	7	870	356	4	2,650
December	2,706	38	1,706	370	6	4,826	1,199	7	876	345	5	2,432
Average	**3,043**	**45**	**2,238**	**382**	**4**	**5,712**	**1,258**	**11**	**714**	**243**	**3**	**2,229**
Man-hours worked						11,559,177						5,570,775

1. Iron ore mining data excluded in 1955.

Aluminum

Although there is no bauxite (the ore of aluminum) in Canada, the aluminum smelting industry in this country is exceeded in size only by that of the United States. The principal factor favouring the establishment of the industry in Canada is abundant and low-cost hydro-electric power at points where necessary raw materials can be cheaply and conveniently assembled.

Producers' shipments of aluminum ingots in 1955 amounted to 612,543 tons compared with 557,897 tons in the preceding year.

The Aluminum Company of Canada, Limited, operated its alumina plant at Arvida and the reduction plants at Arvida, Ile Maligne, Shawinigan Falls and Beauharnois. All of these plants are located in Quebec.

The plant at Kitimat, British Columbia, which began production in 1954 is being expanded. The electric power for this plant is generated at Kemano. Alumina for the smelter is brought by ship from Jamaica.

The principal imported raw materials used in the Canadian aluminum industry are bauxite from British Guiana, coal and coke from the United States, fluorspar from Newfoundland and cryolite from Greenland and the United States.

The price of aluminum ingot was 21 cents per pound at the close of 1955. Effective January 1, 1948, the United States import tariff on aluminum metal and alloys was reduced from 3 cents to 2 cents per pound. The price in the United States was quoted at 24.4 cents in December, 1955.

TABLE 4. Production, Consumption, Imports and Exports of Aluminum Ingots, 1946-1955

Year	Producers' shipments	Consumption	Exports	Imports
	Tons of 2,000 pounds			
1946	194,117	33,825	187,336	246
1947	299,066	50,265	230,175	616
1948	367,079	65,433	328,551	25
1949	369,466	58,767	288,364	40
1950	396,882	65,185	335,726	63
1951	447,095	86,241	354,414	270
1952	499,758	90,287	412,589	13
1953	548,445	88,548	459,692	35
1954	557,897	80,355	468,494	115
1955	612,543	91,522	506,879	99

TABLE 5. Imports of Aluminum and Bauxite, 1954 and 1955

Item	1954		1955	
	Tons	$	Tons	$
Alumina	6,679	336,724	199,811	3,741,629
Bauxite ore	2,955,419	20,064,266	2,892,094	20,816,302
Cryolite	4,454	814,840	3,403	752,587
Aluminum:				
Pigs, ingots and blocks	115	52,577	99	58,390
Scrap	95	21,275	143	40,350
Angles, channels and beams	428	503,775	780	.837,897
Bars, rods and wire	609	482,737	828	705,239
Leaf or foil	...	310,010	...	975,660
Pipes and tubes	655	613,837	864	865,847
Plates, sheets and strips	2,775	2,187,265	3,575	2,944,126
Powder	294	168,292	218	148,543
Wire and cable	1,541	824,680	92	99,723
Household hollow-ware	...	1,374,452	...	2,044,315
Manufactures, n.o.p.	...	9,759,148	...	11,249,402

TABLE 6. Exports of Aluminum, 1954 and 1955

Item	1954		1955	
	Tons	$	Tons	$
Aluminum scrap	13,923	3,888,927	13,122	4,162,487
Aluminum in primary forms	468,494	169,462,223	506,879	197,659,998
Aluminum manufactures, n.o.p.	...	1,532,162	...	769,689
Aluminum, semi-fabricated	17,447	9,041,168	16,658	9,148,811
Aluminum kitchen utensils	...	52,850	...	34,620
Aluminum foil	549	537,159	900	951,140

TABLE 7. World Production of Aluminum, (From the Annual Report of the American Bureau of Metal Statistics)

Country	1951	1952	1953	1954	1955
	Tons of 2,000 pounds				
United States	836,881	937,330	1,252,013	1,460,565	1,565,721
Canada	447,095	499,758	548,445	557,897	584,153
Brazil	444	1,196	1,322	1,612	4,000
Total America	**1,284,420**	**1,438,284**	**1,801,780**	**2,020,074**	**2,153,874**
Austria	29,078	40,468	47,924	63,038	63,050
France	100,423	116,987	123,623	132,545	142,390
Germany (West)	81,718	110,740	117,880	142,519	151,131
Great Britain	31,052	31,367	34,626	35,395	27,378
Italy	54,841	58,235	61,137	63,452	67,741
Hungary	24,000	26,000	33,000	35,000	40,783
Norway	55,403	56,330	58,609	67,583	79,528
Spain	4,583	4,532	4,823	4,545	11,498
Sweden	7,441	9,253	10,800	11,861	11,063
Switzerland	29,762	32,518	31,967	28,660	33,289
Yugoslavia	3,117	2,825	3,078	3,854	12,675
Total Europe[1]	**421,418**	**489,255**	**527,467**	**588,452**	**640,526**
China, Taiwan	3,289	4,250	5,407	7,862	7,717
India	4,311	3,994	4,210	5,472	8,092
Japan	40,681	47,026	50,147	58,543	63,399
Total Asia[2]	**48,281**	**55,270**	**59,764**	**71,877**	**79,208**
Russia	231,500	253,500	275,000	305,000	365,000
Total	**1,985,619**	**2,236,309**	**2,664,011**	**2,985,403**	**3,240,058**

1. Excluding East Germany.
2. Excluding Korea.

Antimony

Antimony production consists of the antimony content of antimonial lead alloys, varying from 5 to 25 per cent antimony, made by the Consolidated Mining and Smelting Co. of Canada, Limited, at Trail, British Columbia; and antimony in flue dust and Doré slag shipped from that smelter.

The greatest single use for antimony is as an alloying element with lead to which it adds hardness and mechanical strength such as in the manufacture of storage batteries and cable covering. It is alloyed with tin in the manufacture of babbit bearings and with lead and tin in solders, foil, collapsible tubes and type metal. Its property of expansion on cooling when alloyed makes it particularly useful in the manufacture of type metal. During the war it was used to harden the lead used in ammunition and to flame-proof canvas goods used by the armed forces.

The Canadian price for antimony was about 33 cents per pound at the end of the year.

TABLE 8. Production of Antimony, 1946-1955

Year	In ores and slags exported		In antimonial lead produced		Total	
	Pounds	$	Pounds	$	Pounds	$
1946	—	—	642,145	96,332	642,145	96,322
1947	—	—	1,150,463	384,255	1,150,463	384,255
1948	—	—	310,062	113,173	310,062	113,173
1949	—	—	158,288	61,020	158,288	61,020
1950	—	—	643,540	215,586	643,540	215,586
1951	5,398,328[1]	817,391	1,303,836	619,322	6,702,164	1,436,713
1952	1,242,840	111,856	1,088,060	489,627	2,330,900	601,483
1953	814,678	40,677	673,418	251,185	1,488,105	291,862
1954	271,350	19,334	1,030,983	329,915	1,302,333	349,249
1955	455,732	38,737	1,565,994	524,608	2,021,726	563,345

1. Includes antimony in flue dust and Doré slag produced in 1949 and 1950 but not previously recorded.

TABLE 9. Production of Antimony Metal, Consumption and Imports, 1946-1955

Year	Production in Canada	Consumption in Canada[1]	Imports
	Tons of 2,000 pounds		
1946	–	871	455
1947	–	1,189	1,440
1948	–	812	547
1949	–	767	1,292
1950	–	997	1,606
1951	–	740	681
1952	–	667	861
1953	–	803	865
1954	–	805	1,022
1955	–	846	679

Note: Export data are not available from customs records.
1. Not including antimony in antimonial lead produced at the Trail smelter.

TABLE 10. Consumption of Antimony Metal, by Industries, 1951-1954

Industry	1951	1952	1953	1954
	Tons of 2,000 pounds			
White metal foundries	632	594	749	704
Electrical apparatus plants	72	42	23	–
Brass foundries	16	12	10	9
Jewellery and electroplate	20	19	21	92
Total accounted for	**740**	**667**	**803**	**805**

TABLE 11. World Production of Antimony (Content of ore)[1], by Countries

(Taken from the "Minerals Yearbook" published by the United States Bureau of mines.)

Country	1950	1951	1952	1953	1954
	Short tons[2]				
North America:					
Canada[3]	322	3,351	1,165	744	600
Honduras	[4]	[4]	–	–	–
Mexico[3]	6,468	7,522	6,097	4,726	4,610
United States	2,497	3,472	2,160	372	764
Total	**9,287**	**14,345**	**9,422**	**5,842**	**5,974**
South America:					
Argentina	31	455[5]	[6]	[6]	[6]
Bolivia[7]	9,679	13,025	10,809	6,376	5,751
Peru	1,070	1,220	557	1,062	933
Total	**10,780**	**15,290[5]**	**11,420[5]**	**7,500[5]**	**6,700[5]**

TABLE 11. World Production of Antimony (Content of ore)[1], by Countries – Concluded

Country	1950	1951	1952	1953	1954
	Short tons[2]				
Europe:					
Austria[8]	451	549	429	342	397
Czechoslovakia	2,200[5]	1,800[5]	1,800[5]	1,800[5]	[6]
France	455	674	518	331	[6]
Germany, West	[6]	53	52	55	[6]
Greece	386	551	386	606[5]	[6]
Hungary	[6]	[6]	[6]	[6]	[6]
Italy	740	799	692	441	317
Portugal	17	21	155	1	[6]
Spain	220	184	288	254	176[5]
Yugoslavia (metal)	2,001	1,355	1,465	1,554	1,711
Total[5]	**6,900**	**6,600**	**6,300**	**5,800**	**5,400**
Asia:					
British Borneo: Sarawak	2	–	–	–	–
Burma[5]	7	220	55	22	55
China[5]	6,600	8,800	8,800	8,800	8,800
Iran	254[9]	254[5,9]	176	265	[6]
Japan	177	247	230	354	291
Thailand (Siam)	96	72	77	50	78
Turkey	1,775	2,984	1,274	951	1,080
Total[5]	**9,000**	**13,000**	**11,000**	**10,000**	10,000
Africa:					
Algeria	1,318	1,391	1,456	1,995	2,595
French Morocco	759	1,055	925	64	429
Southern Rhodesia	26	68	110	26	72
Spanish Morocco	389	235	475	341	330[5]
Union of South Africa	9,161	17,480	7,949	3,009	9,480
Total	**11,653**	**20,229**	**10,915**	**5,435**	**12,800**[5]
Oceania:					
Australia	250	463	268	239	126
New Zealand	–	–	7	12	[6]
Total	**250**	**463**	**275**	**251**	**140**[5]
World total (except U.S.S.R.) estimate	**50,000**	**70,000**	**50,000**	**35,000**	**40,000**

1. Approximate metal content of ore produced, exclusive of antimonial lead ores.
2. This table incorporates a number of revisions of data published in previous chapters.
3. Includes antimony content of antimonial lead.
4. Negligible.
5. Estimate.
6. Data not available; estimate included in total.
7. Exports.
8. Excludes Soviet zone, estimates for which are included in the totals.
9. Year ended March 20, of year following that stated.

Barium

The commercial production of barium metal was introduced in Canada by the Dominion Magnesium Limited, at Haley, Ontario, in 1947. There was a small production during the years 1950 to 1955.

The raw material for making barium metal is imported so the output figures are not included in the statistics of Canada's mineral production.

Beryllium

No beryllium ore has been mined since 1941 when some was produced in Renfrew county and stockpiled. In 1950 a carload of this material was shipped to the United States. No shipments were made in 1955.

In Manitoba a little work was done several years ago on beryl showings in pegmatites opened originally for feldspar and lithium minerals in the Winnipeg River and Oiseau (Bird) River areas, but no shipments were reported.

In the Northwest Territories exploration in the area north and east of the Yellowknife gold camp has disclosed numerous occurrences of beryl in pegmatites which also contain lithium minerals and tantalite-columbite. Some of these are considered to be of possible economic interest.

In Quebec scattered occurrences of beryl are known in the La Corne and Preissac townships, Abitibi county, often associated with molybdenite. None of these, however, is believed to be of economic importance.

Beryllium is used chiefly in the form of beryllium-copper alloys, the most important of which contains about 5 per cent beryllium. A beryllium-aluminum alloy containing 5 per cent beryllium is used as a deoxidizer in making aluminum-magnesium products. Straight beryllium metal has only limited applications, notably for the windows of X-ray tubes, where it is used for its transparency to the rays.

Ground beryl is used as a batch ingredient in spark plugs and other ceramic specialties, to which it imparts high electrical and impact resistance and transverse strength. Some is also used in cooking utensil enamels. Consumption for such uses in the United States is estimated at about 100 tons a year.

New York price quotations, at the end of the year, for beryllium ore, f.o.b. mine, were $46 to $48 per unit of BeO, basis 10 to 12 per cent BeO.

TABLE 12. World Production of Beryl, by Countries [1]

(Taken from the "Minerals Yearbook" of the United States Bureau of Mines)

Country [1]	1950	1951	1952	1953	1954
	Short tons [2]				
North America:					
Canada	29 [3]	—	—	—	—
United States (mine shipments)	559	484	515	751	642
Total	**588**	**484**	**515**	**751**	**642**
South America:					
Argentina	—	—	550 [3]	1,459 [3]	—
Brazil (exports)	2,894	1,690	2,781	2,381	1,506
Surinam	—	—	—	2	10
Total	**2,894**	**1,690**	**3,331**	**3,842**	**1,516**
Europe:					
France	3	2	—	[4]	[4]
Norway	—	—	—	—	—
Portugal	57	112	103	414	332
Total (estimate) [1]	**171**	**220**	**215**	**524**	**441**
Asia:					
Afghanistan	8	2	—	—	305
India	[4]	237	600 [5]	199 [3]	392 [3]
Korea, Republic of	—	—	[6]	4	4 [3]
Total	**120 [5]**	**239**	**600 [5]**	**203**	**430 [5]**
Africa:					
Belgian Congo	—	—	—	8	50
French Morocco	62	93	142	36	17
Madagascar	536	584	438	516	648
Mozambique	291	254	229	276	500 [5]
Northern Rhodesia	6	4	9	6	1
Southern Rhodesia	933	1,110	1,186	1,774	1,077
South West Africa	726	830	592	590	564
Tanganyika	—	—	—	—	[4]
Uganda	78	2	3	55	77
Union of South Africa	930	654	413	531	203
Total	**3,562**	**3,531**	**3,012**	**3,792**	**3,100 [5]**
Australia	25	126	98	140	166
World total (estimate)	**7,400**	**6,300**	**7,800**	**9,300**	**6,300**

1. In addition to the countries listed, beryl has been produced in a number of countries for which no production data are available, except for U.S.S.R.; their aggregate output is not significant.
2. This table incorporates a number of revisions of data published in previous beryl chapters.
3. United States imports.
4. Data not available; estimate included in total.
5. Estimate.
6. Less than 0.5 ton.

Bismuth

Bismuth was produced at the Trail smelter of the Consolidated Mining and Smelting Company of Canada, Limited, from the firm's own ores and also from custom ores. In Quebec the Molybia Corporation, Limited, produced bismuth oxychloride concentrates and metallic bismuth.

Bismuth is too brittle to be used alone, but its alloys have many uses, such as, in the manufacture of sprinkler plugs and other fire-protection devices, electrical fuses, low-melting solders, dental amalgams and tempering baths for small tools. Like antimony, bismuth expands on solidification and retains this property in a number of alloys, and is used in type metal. This group of bismuth-lead-tin-cadmium alloys is used by the airplane and automotive industries to prepare spotting fixtures, to make moulds for electroforming, to fill thin-walled tubing during bending and to spray-coat wooden patterns and core boxes in foundries.

According to the "E & M J Metal and Mineral Markets", the New York price of bismuth December, 1955, was $2.25 per pound, in ton lots.

TABLE 13 .Production of Primary Bismuth in all Forms[1], 1946-1955

Year	Pounds	$	Year	Pounds	$
1946	240, 504	336, 706	1951	230, 298	543, 504
1947	284, 372	560, 213	1952	162, 373	347, 224
1948	240, 242	480, 484	1953	117, 366	209, 557
1949	102, 913	210, 972	1954	258, 675	572, 183
1950	191, 621	431, 147	1955	265, 896	572, 362

1. Refined metal from Canadian ores, plus bismuth content of bullion and concentrates exported.

TABLE 14. Production of Bismuth Metal, Consumption, Imports and Exports, 1946-1955

Year	Production	Domestic consumption	Exports[1]	Imports
	Tons of 2,000 pounds			
1946	120	40	95	—
1947	142	71	61	2
1948	120	44	79	80
1949	105[2]	18	89	136
1950	97[2]	33	57	—
1951	104[2]	54	45	—
1952	71[2]	53	17	1
1953	36[2]	34	—	—
1954	113[2]	37	67	—
1955	80	46	28	3

1. Shipped for export by Canadian producers.
2. Includes bismuth from foreign ores.

TABLE 15. Consumption of Bismuth Metal, by Industries, 1950-1954

Industry	1950	1951	1952	1953	1954
	Tons of 2,000 pounds				
Medicinals and pharmaceuticals	14	29	26	8	10
White metal foundries	14	18	20	21	18
Miscellaneous	5	7	7	5	9
Total	**33**	**54**	**53**	**34**	37

TABLE 16. World Production of Bismuth, by Countries

(Taken from the "Minerals Yearbook" of the United States Bureau of Mines)

Country[1]	1950	1951	1952	1953	1954
			Pounds[2]		
North America:					
Canada (metal)[3]	191,617	362,571	162,371	117,364	272,696
Mexico[3]	580,339	745,100	895,220	739,209	795,900
United States	4	4	4	4	4
South America:					
Argentina: Metal	6	6	1,100[5]	6	6
In ore	6	6	1,100[5]	6	6
Bolivia (in ore, bullion, exported)[7]	53,887	150,788	35,119	138,731	101,467
Peru[3]	500,116	579,049	714,828	631,990	691,726
Europe:					
France (in ore)	172,000	198,000	190,000	159,000	6
Spain (metal)	25,009	33,466	27,044	56,006	50,700[5]
Sweden	—	—	6	6	6
Yugoslavia (metal)	124,075	193,476	217,600	217,047	241,842
Asia:					
China (in ore)					
Japan (metal)	72,880	92,615	96,068	110,159	128,000
Korea, Republic of	6	27,600	243,000	529,000	254,000
Africa:					
Belgian Congo (in ore)	1,473	496	1,036	—	6
South West Africa (in ore)[6]	15,900	200	—	100	6
Uganda	6,385	6,385	6,200	1,100	400
Union of South Africa	16,863	7,019	3,391	2,200[5]	6
Australia (in ore)[8]	2,015	2,575	3,153	900	6
Total (estimate)	**3,100,000**	**3,900,000**	**4,100,000**	**4,200,000**	**3,800,000**

1. Bismuth is believed to be produced also in Brazil, Germany, Romania, U.S.S.R. and United Kingdom. Production figures are not available for these countries, but estimates are included in total.
2. This table incorporates a number of revisions of data published in previous bismuth chapters.
3. Refined metal, plus bismuth content of bullion exported.
4. Production included in total; Bureau of Mines not at liberty to publish separately.
5. Estimate.
6. Data not available; estimate included in total.
7. Excludes bismuth content of tin concentrates exported.
8. Partly estimated. Excludes content of some bismuth-tungsten concentrates.

Cadmium

Cadmium is recovered in Canada as a by-product of the electrolytic refining of zinc. The zinc refineries at Trail, British Columbia, and Flin Flon, Manitoba, both produce metallic cadmium. In British Columbia the greater portion of cadmium is derived from the lead-zinc ores of the Sullivan mine, but also a considerable amount is recovered from the customs ores shipped from various mines in British Columbia and Yukon to the smelter of the Consolidated Mining & Smelting Company of Canada, Limited, at Trail. Cadmium is found in the copper-gold-zinc ores of the Flin Flon deposit on the Saskatchewan-Manitoba boundary. The output of cadmium in all forms amounted to 910 tons during 1955.

Cadmium is used mainly in electroplating and in the manufacture of alloys and compounds, the most common use being as a protective coating for steel. To a much lesser extent, it is used in copper alloys. The use of cadmium alloys in motor vehicle bearings and for solders has created a strong demand for the metal. Cadmium is used also in the arts, paints, ceramics and dyeing, etc.

Cadmium is marketed in metallic form, 99.5 per cent pure and better, and as a sulphide. The principal compounds are cadmium sulphide, cadmium oxide, cadmium lithopone and cadmium selenite.

The New York price for commercial sticks of cadmium in December, 1955, was $1.70 per pound.

TABLE 17. Production of Cadmium in all Forms, 1946-1955

Year	British Columbia and Yukon		Manitoba and Saskatchewan		Canada	
	Pounds	$	Pounds	$	Pounds	$
1946	636, 315	776, 304	166, 333	202, 926	802, 648	979, 230
1947	545, 638	938, 497	172, 896	297, 382	718, 534	1, 235, 879
1948	617, 226	1, 126, 437	148, 864	271, 677	766, 090	1, 398, 114
1949	665, 449	1, 364, 170	181, 092	371, 239	846, 541	1, 735, 409
1950	706, 950	1, 640, 124	141, 456	328, 176	848, 406	1, 968, 302
1951	1, 179, 752	3, 161, 735	147, 168	394, 410	1, 326, 920	3, 556, 145
1952	834, 235	1, 835, 317	114, 352	251, 574	948, 587	2, 086, 891
1953	960, 288	1, 920, 576	157, 997	315, 994	1, 118, 285	2, 236, 570
1954	932, 184	1, 584, 713	154, 596	262, 813	1, 086, 780	1, 847, 526
1955	1, 727, 390	2, 936, 564	191, 691	325, 875	1, 919, 081	3, 262, 439

TABLE 18. Consumption and Exports of Cadmium Metal, 1946-1955

Year	Production	Domestic consumption	Exports
	Tons of 2,000 pounds		
1946	401	96	296
1947	359	72	309
1948	383	92	275
1949	423	111	317
1950	419[1]	116	349
1951	633[1]	146	460
1952	410[1]	74	310
1953	489[1]	133	485
1954	529[1]	113	388
1955	857[1]	174	881

1. Includes cadmium recovered from foreign ores.

Note: Statistics on imports are not available.

TABLE 19. World Production[1] of Cadmium, by Countries

(Taken from the "Minerals Yearbook" of the United States Bureau of Mines)

Country	1950	1951	1952	1953	1954
	Thousands of pounds				
Australia	659	517	641	665	515
Belgian Congo	65	54	45	71	139
Belgium[2]	805	990	1, 210	1, 040	1, 100
Canada	848	1, 327	949	1, 118	1, 027
France	158	187	195	283	313
Germany, West	26	154	141	227	618
Italy	165	441	293	401	448
Japan	199	259	367	459	501
Mexico[3]	1, 519	1, 969	1, 618	2, 103	1, 488[2]
Norway	174	221	163	197	178
Peru	3	—	38	23	66
Poland[2]	530	530	530	530	530
South West Africa[4]	1, 344	1, 434	1, 112	1, 194	1, 620
Spain	10	9	12	16	12[2]
U.S.S.R.[2]	150	180	200	200	220
United Kingdom	262	326	347	380	315
United States: Metal	8, 849	8, 114	8, 388	9, 682	9, 416
Cadmium compounds (Cd. content)	341	197	179	85	136
Total (estimate)	**13, 250**	**16, 910**	**13, 700**	**15, 380**	**15, 540**

1. This table incorporates a number of revisions of data published in previous chapters.
2. Estimate.
3. Cadmium content of flue dust exported for treatment elsewhere; represents in part, shipments from stocks on hand. To avoid duplication of figures, data are not included in the total.
4. Cadmium content of concentrates exported for treatment elsewhere. To avoid duplication of figures, data are not included in the total.

Calcium

The commercial production of calcium in Canada started in 1945 when the metal was recovered from lime by Dominion Magnesium Limited, at its plant located at Haley, Ontario. In 1955 the value of output is included with the data on magnesium.

Calcium has found increasing use as a deoxidizer in ferrous metallurgy and as an alloy constituent with non-ferrous metals. It has been employed in the reduction of difficultly reducible metals, such as chromium, thorium, uranium and zirconium.

In 1955 the New York price for calcium, 97-98 per cent as cast, was $2.05 per pound.

TABLE 20. Production (shipments) of Calcium Metal, 1945-1955

Year	Pounds	$
1945	22,720	19,312
1946	53,548	68,720
1947	602,665	642,607
1948	895,203	1,723,266
1949	520,069	1,040,138
1950-1955	(Not available for publication)	

Cerium

A few tons of rock containing cerium and other Rare earths were shipped from the Parry Sound district to a metallurgical plant in the United States, during 1955. This experimental shipment was valued at $988.

Cerium is obtained from monazite, a monoclinic phosphate of cerium metals containing about 32 per cent cerium oxide (Ce_2O_3) and up to 18 per cent thoria (ThO_2). Monazite is distributed widely in igneous rocks throughout the world, especially in gneisses that have been intruded by pegmatites, but usually it forms only a small fraction of one per cent of the containing rock, and only the natural concentrations in stream gravels and beach sands have paid for exploration. The chief commercial sources of monazite sand are beach deposits in Brazil and India. There are a few occurrences of monazite in Nova Scotia, Quebec and British Columbia, none of which is of commercial interest. It is usually found as small crystals in granites and pegmatites in the Canadian Shield, and small quantities occur in association with the black sands of the Quesnel river, Lillooet district, British Columbia. In the United States there are commercial deposits in Carolina, Florida and Idaho, and known occurrences in many other states.

In Canada, Shawinigan Chemicals, Limited, Shawinigan Falls, Quebec, has been producing cerium products from imported cerium chloride since 1940. The output is sold to the Belgo Canadian Manufacturing Company, Limited, of Montreal, for the manufacture of sparking flints.

Chromite

There was no Canadian production of chromite in 1955. This mineral was mined for several years in the Black Lake area in Quebec.

Chromite is one of the principal alloying elements in a great variety of steels, chief of which, in the amount of chromium used, are the stainless and the corrosion-resistant steels. It is used in high-speed tool steels, and as a hard, toughening element in vehicle axles and frames and in aeroplane parts. Chromium in high-temperature alloys is being used for gas turbines, jet-propulsion units and gas engine superchargers. For metallurgical uses chromite should contain a minimum of 48 per cent Cr_2O_3 with a chrome-iron ratio of 3 to 1 or higher, and the ore should be hard and lumpy.

Chrome ore is used for making refractory bricks or materials used in basic open-hearth furnaces, in arches of furnaces and in parts of combustion chambers of high-pressure steam boilers, etc. It is used with magnesia to make chrome-magnesia refractories, an important use in Canada being in the manufacture of brucite-magnesia bricks that contain up to 30 per cent Cr_2O_3. Refractory chromite should be fairly high in Cr_2O_3 and alumina, and as low as possible in silica and iron. The ore should be hard and lumpy and not under 10-mesh, and the chromite should be present in an evenly and finely distributed form, not as course grains mixed with blobs of silicate. The Cr_2O_3 content is usually over 40 per cent.

The United States price, December, 1955, for chrome ore, 48 per cent Cr_2O_3, was $43.00 – $47.00 per long ton, f.o.b. Atlantic ports.

TABLE 21. Production of Chromite, 1945-1955

Year	Short tons	$	Year	Short tons	$
1945	5,755	160,752	1950	—	—
1946	3,110	61,123	1951	—	—
1947	2,162	42,159	1952	—	—
1948	1,715	33,568	1953	—	—
1949	361	7,148	1954-1955	—	—

TABLE 22. World Production of Chromite, by Countries

(Taken from the "Minerals Yearbook" of the United States Bureau of Mines.)

Country[1]	1950	1951	1952	1953	1954
	Short tons[2]				
North America:					
Canada	—	—	—	—	—
Cuba	72,554	87,154	68,132	77,205	60,000[3]
Guatemala	319	1,254	116	441	110[3]
United States	404	7,056	21,304	58,817	159,743
Total	**73,277**	**95,464**	**89,552**	**136,463**	**220,000**
South America:					
Argentina	—	—	—	—	[4]
Brazil[5]	3,557	2,663	2,920	4,000[3]	3,000[3]
Total	**3,557**	**2,663**	**2,920**	**4,000[3]**	**3,000[3]**
Europe:					
Albania	57,320[3]	[4]	[4]	[4]	[4]
Greece	13,923	27,925	35,452	40,520	29,549
Portugal	50	36	119	5	—
U.S.S.R.[3,6]	500,000	600,000	600,000	600,000	600,000
Yugoslavia	126,475	109,333	118,192	139,950	137,216
Total	**715,000**	**820,000**	**835,000**	**870,000**	**855,000**
Asia[6]:					
Afghanistan	606	83	—	—	—
Cyprus (exports)	20,328	13,948	14,867	9,115	10,087
India	18,737	18,706	40,530[7]	72,543	55,000[3]
Iran	—	[4]	9,728	22,046	20,000[3]
Japan	36,331	45,134	51,975	41,418	35,821
Pakistan	20,300	19,848	19,040	25,760	24,527
Philippines	276,141	368,801	599,121	614,086	442,230
Turkey	465,758	682,793	889,466	1,005,883	619,001
Total[6]	**838,201**	**1,151,518**	**1,624,727**	**1,790,851**	**1,207,000[3]**
Africa:					
Egypt	40	—	—	231	584
Sierra Leone	8,287	18,139	26,312	27,277	16,667[5]
Southern Rhodesia	321,351	330,987	355,679	463,028	442,506
Union of South Africa	547,103	600,763	639,366	798,562	706,935
Total	**876,781**	**949,889**	**1,021,357**	**1,289,098**	**1,166,692**
Oceania:					
Australia	998	1,545	1,565	3,070	2,000[3]
New Caledonia	93,477	97,876	118,675	133,446	92,818
Total	**94,475**	**99,421**	**120,240**	**136,516**	**94,818**
World total (estimate)	**2,600,000**	**3,100,000**	**3,700,000**	**4,200,000**	**3,500,000**

1. In addition to countries listed, Bulgaria and Romania produce chromite, but data on output are not available; estimates are included in total.
2. This table incorporates a number of revisions of data in previous chromite chapters.
3. Estimate.
4. Data not available; estimate included in total.
5. Exports.
6. Output from U.S.S.R. in Asia included with U.S.S.R. in Europe.
7. Does not include 21,603 tons of low-grade ore accumulated from production from 1943 to 1948.

TABLE 23. Imports of Chrome Ores, 1946-1955

Year	Tons	$	Year	Tons	$
1946	15,836	269,248	1951	146,998	3,762,874
1947	98,322	3,138,229	1952	148,343	5,146,860
1948	69,183	1,937,692	1953	118,092	3,006,549
1949	66,246	1,664,082	1954	37,566	571,984
1950	119,325	2,192,555	1955	51,854	971,522

TABLE 24. Imports of Chrome Ores, by Principal Countries of Supply, 1954 and 1955

Imported from	1954		1955	
	Tons	$	Tons	$
Union of South Africa	20,883	267,347	9,805	112,597
Rhodesia, Nyasaland	6,112	120,772	7,849	179,254
U.S.S.R.	—	—	110	1,375
United States	1,562	66,540	5,029	172,257
Philippines	8,960	117,325	14,896	197,505
Cuba	—	—	14,165	308,534
Total	**37,566**	**571,984**	**51,854**	**971,522**

Indium

Indium production in 1955 amounted to 104,774 ounces valued at $232,598 as compared with 477 ounces valued at $1,278 in 1954. Indium is recovered by the Consolidated Mining & Smelting Co. of Canada, Limited, from the treatment of zinc refinery residues.

The major use has been in heavy-duty composite metal bearings employed extensively in airplanes, tanks and other mobile equipment. A zinc-indium alloy was used in applying a noncorrosive plating to hollow-steel airplane propellers. Minor uses have been in solder and brazing alloys and alloyed with gold and silver, for jewellery and plated articles. The first commercial use about 1927 was as a non-tarnish coating on silverware. Low-melting paint alloys also have been manufactured recently. Indium foil was used as a neutron indicator in the atomic bomb project uranium-graphite piles. Low-energy neutrons, about 1.5 electron-volt, are particularly effective in inducing artificial radioactivity in indium.

At the close of 1955 the quoted price of indium at New York was $2.25 per ounce troy. The price has remained at this level for the past ten years.

TABLE 25. Production of Indium, 1942-1955

Year	Troy ounces	$	Year	Troy ounces	$
1942	470	4,710	1951	582	1,368
1943-1948	—	—	1952	404	909
1949	689	1,550	1953	6,752	9,588
1950	4,952	12,083	1954	477	1,278
			1955	104,774	232,598

Iron Ore

Producers' shipments of iron ore in 1955 amounted to 16,283,177 short tons valued at $110,435,850 compared with 7,361,598 short tons valued at $49,666,507 at the shipping ports, in 1954. Included in the total are direct-shipping ore, sinter and magnetic concentrates. By-products from treating pyrite are excluded to avoid duplication, as the pyrite is measured at the mine before treatment. Statistics on the products of pyrite treatment are included in the manufacturing industries.

Wabana Mines in Newfoundland shipped a large portion of the output to the United Kingdom and West Germany. The Labrador-New Quebec mines, which began shipping in 1954, greatly increased the tonnage of shipments in 1955. Marmoraton Mines at Marmora, Ontario, began production of pelletized magnetite in April, 1955. Steep Rock Iron Mines recorded a new high in the output of ore from the open-pit mine. Considerable development was done in Northwestern Ontario by Steep Rock Iron Mines and Caland Ore Company. Algoma Ore Properties, Limited, supplied sintered siderite to the Algoma Steel Corporation and also shipped sinter to customers in the United States. Plans were announced for the development of the magnetite deposit at Bristol, Quebec. Magnetite concentrates were exported by the Texada Mines and the Argonaut mine, Division of Utah Co. of the Americas. Both of these operations are located in British Columbia.

Detailed technical information on the mining and development of the iron ore industry may be found in the annual report of the Department of Mines and Technical Surveys, Ottawa.

TABLE 26. Principal Statistics for the Iron Ore Mining Industry, Significant Years, 1921-1955

Year	Establishments	Employees	Earnings	Cost of fuel and electricity	Cost of process supplies and containers	Gross value of production	Net value [1] of production
	No.	No.	$	$	$	$	$
1921							
1929	Data on iron ore prior to 1929 included in titaniferous iron ore and titanium ore						
1931							
1933							
1937	No iron ores, known as such, were mined in Canada for some years prior to 1939						
1939	2	216	334,215	81,435	63,450	341,594	196,709
1941	4	272	475,741	267,167	103,161	1,426,057	825,357
1944	8	679	1,462,453	642,761	200,438	1,909,608	789,756
1946	11	823	1,944,436	687,011	604,081	6,822,947	3,466,760
1949	13	3,257	8,851,746	1,160,183	1,284,198	21,203,907	15,430,743
1951	20	3,638	11,357,690	1,806,356	2,920,993	31,141,112	21,870,765
1952	27	4,473	15,955,201	2,240,932	3,850,499	33,744,311	23,005,559
1953	25	5,242	21,073,712	2,875,190	6,214,680	44,102,944	30,066,883
1954	32	4,981	18,907,608	2,802,280	8,681,805	49,666,507	32,051,077
1955	30	4,892	18,740,274	2,694,357	6,466,556	110,435,850	71,788,935

1. Gross value of production, less value of fuel, electricity, process supplies and freight.

TABLE 27. Production of Iron Ore [1], 1946-1955

Year	Short tons	Value	Year	Short tons	Value
		$			$
1946	1,549,523	6,822,947	1951	4,680,510	31,141,112
1947	1,919,366	9,313,201	1952	5,271,849	33,744,311
1948	1,337,244	7,487,611	1953	6,509,818	44,102,944
1949 [2]	3,675,096	21,203,907	1954	7,361,598	49,666,507
1950	3,605,261	23,413,547	1955	16,283,177	110,435,850

1. Exclusive of titanium-bearing ores.
2. Newfoundland iron ore included for first time in Canadian production.

TABLE 28. Imports and Exports of Iron Ore, 1946-1955

Year	Imports			Exports
	From United States	From Newfoundland	Total [1]	
	Tons of 2,000 pounds			
1946	1,686,236	518,566	2,281,677	1,145,256
1947	3,126,307	755,612	3,944,550	1,749,976
1948	3,392,063	820,692	4,300,163	1,070,277
1949	2,350,149	42,285	2,517,235	2,550,299
1950	2,975,659	—	3,070,557	2,227,475
1951	3,690,269	—	3,831,418	3,225,767
1952	4,106,737	—	4,267,658	3,846,998
1953	4,008,810	—	4,167,571	4,819,975
1954	2,935,237	—	3,035,191	6,126,938
1955	4,449,741	—	4,538,789	14,568,960

1. Includes some ore from other countries, principally Brazil, Sweden and Liberia.

TABLE 29. Iron Ore Charged to Iron Blast Furnaces, 1946-1955

Year	Canadian	Imported	Total
	Tons of 2,000 pounds		
1946	358,173	2,167,900	2,526,073
1947	252,085	3,420,890	3,672,975
1948	193,935	3,716,683	3,910,618
1949	1,107,250	2,738,816	3,846,066
1950	1,398,712	2,774,801	4,173,513
1951	1,476,440	3,168,581	4,645,021
1952	1,404,797	3,477,356	4,882,153
1953	1,269,815	3,965,835	5,235,650
1954	750,000	2,988,000	3,738,000
1955	787,827	2,961,282	3,749,109

Note: Newfoundland ore, classified as Canadian in 1949 and thereafter, was included in imported ore in previous years.

TABLE 30. World Production of Iron Ore, by Countries

(Taken from "Minerals Yearbook" published by the United States Bureau of Mines)

Country [1]	1949	1950	1951	1952	1953
	Thousands of metric tons [2]				
North America:					
Canada	3,334	3,271	4,246	4,783	5,898
Cuba	12	12	17	101	229
Mexico	363	420	460	523	547
United States	86,301	99,619	118,375	99,490	119,889
South America:					
Argentina [3]	40	40	54	60	80
Brazil	1,888	1,987	2,407	3,044	3,145
Chile [4]	2,597	2,976	3,252	2,209	2,165
Venezuela	—	198	1,270	1,970	2,296
Peru	—	—	—	—	1,001

TABLE 30. World Production of Iron Ore, by Countries — Concluded

(Taken from "Minerals Yearbook" published by the United States Bureau of Mines)

Country[1]	1949	1950	1951	1952	1953
	Thousands of metric tons[2]				
Europe:					
Austria	1,488	1,859	2,370	2,653	2,757
Belgium	42	46	79	135	99
Bulgaria[3]	—	27	43	60	92
Czechoslovakia	1,400[3]	1,784[3]	19,642[3]	2,315[3]	2,500[3]
France	31,424	30,016	35,201	40,716	42,368
Germany: East[3]	250	386	592	852	1,250
West	9,112	10,883	12,923	15,404	14,619
Greece	—	5	53	137	86
Hungary	339	368	400[3]	450[3]	500[3]
Italy	554	476	553	790	933
Luxembourg	4,137	3,845	5,625	7,245	7,170
Norway	275	298	332	769	1,182
Poland	699	790	901	1,027	1,345
Portugal	—	—	21	89	123
Rumania[3]	324	395	478	654	661
Spain	1,876	2,088	2,389	2,863	2,956
Sweden	13,729	13,611	15,383	16,949	17,128
Switzerland	70	55	86	107	105
U.S.S.R.	35,000	44,000	48,000	50,000	55,000
United Kingdom	13,612	13,171	15,014	16,493	16,072
Yugoslavia	835	826	581	676	795
Asia:					
China[3]	500	2,000	3,000	4,000	5,000
Hong Kong	60	172	164	130	125
India	2,854	3,005	3,716	3,989	3,617
Japan[6]	794	927	1,168	1,394	1,541
Korea, Republic of	—	—	—	17	19
Korea, North	[7]	[7]	[7]	[7]	[7]
Malaya	9	507	860	1,072	1,080
Philippines	370	599	903	1,170	1,218
Portuguese India	151	131	436	494	803[8]
Thailand	—	3	6	3	8
Turkey	211	234	226	482	506
U.S.S.R.	[5]	[5]	[5]	[5]	[5]
Africa:					
Algeria	2,538	2,573	2,823	3,096	3,388
French Guiana	—	—	—	—	399
French Morocco	357	323	533	651	506
Liberia	—	—	171	904	1,316[8]
Northern Rhodesia	2	—	—	6	2
Sierra Leone	1,104	1,185	1,159	1,183	1,390
Southern Rhodesia	51	57	52	65	63
Spanish Morocco	893	951	937	934	986
Tunisia	712	758	923	977	1,057
Union of South Africa	1,242	1,189	1,421	1,759	1,971
Oceania:					
Australia	1,484	2,403	2,475	2,954	3,352
New Caledonia	—	15	—	3	—
Total (estimate)	**223,000**	**250,000**	**294,000**	**298,000**	**331,000**

1. In addition to countries listed, Egypt and Madagascar report production in past years, but quantity produced is believed insufficient to affect estimate of world total.
2. This table incorporates a number of revisions of data published in previous iron ore chapters.
3. Estimate.
4. Production of Tofo mines.
5. U.S.S.R. in Asia included with U.S.S.R. in Europe.
6. Includes iron sand production as follows: 1949, 33,120 tons; 1950, 101,544 tons; 1951, 255,984 tons; 1952, 322,008 tons; and 1953, 437,868 tons.
7. Data not available; estimate included in total.
8. Exports.

TABLE 31. Estimated Capital and Repair Expenditures, 1951-1955

Year	Capital expenditures			Repair expenditures			Capital and repair expenditures		
	Construction	Machinery	Total	Construction	Machinery	Total	Construction	Machinery	Total
	Thousands of dollars								
1951	8, 194	4, 309	12, 503	188	3, 216	3, 404	8, 382	7, 525	15, 907
1952	18, 034	12, 102	30, 136	1, 073	2, 507	3, 580	19, 107	14, 609	33, 716
1953	19, 067	29, 073	48, 140	825	4, 148	4, 973	19, 892	33, 221	53, 113
1954	28, 850	15, 039	43, 889	592	4, 264	4, 856	29, 442	19, 303	48, 745
1955[1]	19, 879	10, 024	29, 903	705	4, 744	5, 449	20, 584	14, 768	35, 552

1. Preliminary estimates.

TABLE 32. Employees and Their Earnings in the Iron Ore Mining Industry, 1951-1955

Year	Number of employees					Number of man-hours worked (all employees)	Earnings		
	Office and administrative		Workmen		Total		Office and administrative	Workmen	Total
	Male	Female	Male	Female					
							$	$	$
1951	273	29	3, 298	38	3, 638	7, 382, 442	1, 141, 375	10, 216, 315	11, 357, 690
1952	446	40	3, 942	45	4, 473	12, 224, 191	1, 921, 935	14, 033, 266	15, 955, 201
1953	504	67	4, 631	40	5, 242	12, 000, 682	2, 701, 636	18, 372, 076	21, 073, 712
1954	402	72	4, 464	43	4, 981	10, 063, 564	1, 903, 869	17, 003, 739	18, 907, 608
1955	543	84	4, 238	27	4, 892	9, 987, 875	2, 809, 482	15, 930, 792	18, 740, 274

TABLE 33. Workmen in the Iron Ore Mining Industry, by Months, 1954 and 1955

Month	1954	1955					
	Total	Mine			Mill or plant		Total
		Surface		Underground	Male	Female	
		Male	Female	Male			
	Number						
January	4, 509	1, 938	30	1, 285	149	3	3, 405
February	4, 436	1, 922	26	1, 303	174	3	3, 428
March	4, 413	2, 013	25	1, 396	185	3	3, 622
April	4, 375	2, 377	25	1, 554	211	3	4, 170
May	4, 425	2, 631	23	1, 537	248	3	4, 442
June	4, 617	2, 725	23	1, 579	250	3	4, 580
July	4, 586	2, 906	25	1, 611	252	3	4, 797
August	4, 720	2, 889	25	1, 592	254	3	4, 763
September	4, 646	2, 849	20	1, 541	262	3	4, 675
October	4, 505	2, 807	21	1, 556	278	3	4, 665
November	4, 307	2, 499	19	1, 596	230	3	4, 347
December	3, 537	2, 477	19	1, 577	207	3	4, 283
Average	4, 507	2, 502	24	1, 511	225	3	4, 265
Man-hours worked	8, 941, 988						8, 726, 135

Magnesium

Magnesium is produced from dolomite by the Dominion Magnesium Limited, Haley, Ontario. This firm uses the Pidgeon process. At Arvida, Quebec, the Aluminum Company of Canada, Limited, treats brucite, brought from Wakefield, Quebec, by converting it to magnesium chloride and thence to magnesium metal.

TABLE 34. Production of Primary Magnesium Metal, 1943-1955

Year	Quebec		Ontario		British Columbia		Canada	
	Pounds	$	Pounds	$	Pounds	$	Pounds	$
1943	—	—	7,153,974	2,074,652	—	—	7,153,974	2,074,652
1944	—	—	10,579,778	2,575,695	—	—	10,579,778	2,575,695
1945	—	—	7,358,545	1,607,264	—	—	7,358,545	1,607,264
1946	—	—	320,677	75,538	—	—	320,677	75,538
1947-1955	Not available for publication							

TABLE 35. Consumption of Magnesium Metal, 1950-1954

—	1950	1951	1952	1953	1954
	Pounds				
In white metal alloy foundries	706,118	1,884,331	1,420,585	1,796,134	1,743,198
In brass and bronze foundries	69,543	270,325	113,427	147,671	121,533
In aluminum products	298,544	508,650	703,873	883,973	751,089
Total accounted for	**1,074,205**	**2,663,306**	**2,237,885**	**2,827,778**	**2,615,820**

TABLE 36. World Production of Magnesium Metal, by Countries

(Taken from the "Minerals Yearbook" published by the United States Bureau of Mines)

Country[1]	1950	1951	1952	1953	1954
	Short tons[1]				
Canada	1,764	4,409	5,500	6,600[2]	6,600[2]
China, Manchuria	[3]	[3]	[3]	[3]	[3]
France	449	1,263	1,202	1,100	1,243
Germany—West	—	—	—	—	90
East[2]	1,100	1,100	1,100	1,100	1,100
Italy	134	746	1,076	1,595	1,836
Norway	—	338	338	3,853	5,183
Switzerland	276	276	331	275[2]	—
United Kingdom[4]	3,307	5,512	5,071	5,936	5,577
United States	15,726	40,881	105,821	93,075	69,729
U.S.S.R.[2]	25,000	35,000	45,000	55,000	45,000
Total (estimate)	**50,000**	**90,000**	**170,000**	**170,000**	**140,000**

1. This table incorporates a number of revisions of data published in previous magnesium chapters.
2. Estimate.
3. Data not available; estimate included in total.
4. Primary metal and remelt alloys.

Manganese

Production of manganese ore in Canada has been spasmodic due to the limited number of known deposits. No production was recorded for 1955. Some development work was done in New Brunswick.

Most of the imported ore is used in making addition agents for steel manufacturing. High-grade manganese dioxide is used in making dry cell batteries. Manganese compounds are used in the glass, enamel, paint and rubber industries. Price quotations of manganese ore, basis 48% Mn, were $1.12 to $1.17 per long ton unit, c.i.f. U.S. ports.

TABLE 37. Production of Manganese Ore, 1943-1955

Year	Tons	Value	Year	Tons	Value
		$			$
1943	48	985	1948	3	88
1944	–	–	1949	–	–
1945	–	–	1950	–	–
1946	–	–	1951	–	–
1947	225	7,875	1952-1955	–	–

TABLE 38. Imports of Manganese Oxide, 1946-1955

Year	Tons	$	Year	Tons	$
1946	144,023	2,484,707	1951	222,082	9,078,011
1947	223,503	6,145,568	1952	194,405	8,273,722
1948	230,298	6,449,819	1953	66,682	2,719,863
1949	137,854	4,475,522	1954	48,962	2,277,043
1950	135,697	4,993,912	1955	175,282	7,338,269

TABLE 39. Imports of Manganese Oxide, by Principal Countries of Supply, 1952-1955

–	1952	1953	1954	1955
	Tons			
From:				
Belgium	–	12,340	2,240	–
Cuba	3,864	–	6,940	5,355
Gold Coast	63,112	10,035	5,600	56,011
India	13,954	11,043	1,794	42,199
France	–	–	5	–
United States	74,393	31,709	32,304	47,201
United Kingdom	50	55	75	95
Netherlands	–	–	–	35
Brazil	5,152	–	–	–
Mexico	–	–	–	3,506
Turkey	25,688	–	–	–
Union of South Africa	7,520	1,500	–	8,926
Philippines	672	–	–	–
Belgian Congo	–	–	–	11,951
Total imports	**194,405**	**66,682**	**48,962**	**175,282**

TABLE 40. World Production of Manganese Ore, by Countries[1]

(Taken from the "Minerals Yearbook" of the United States Bureau of Mines)

Country[1]	1950	1951	1952	1953	1954
	Short tons[2]				
North America:					
Canada (shipments)	—	—	—	—	—
Cuba	87,313	169,856	277,426	389,356	296,801
Mexico	38,892	87,292	157,403	269,863	277,996
United States (shipments)	134,451	105,007	115,379	157,536	206,128
Total	**260,656**	**362,155**	**550,208**	**816,755**	**780,925**
South America:					
Argentina	1,268	1,323	2,535	5,512	1,323
Brazil[4]	215,507	224,366	274,732	255,058	220,000[3]
Chile	36,960	40,320	59,356	60,207	58,422[3]
Peru	840	1,043	1,221	3,500[3]	5,000[3]
Total	**254,575**	**267,052**	**337,844**	**324,277**	**285,000[3]**
Europe:					
Greece	353	11,676	25,369	14,827	17,600[3]
Hungary (concentrates)[3]	44,000	44,000	44,000	44,000	44,000
Italy	21,422	31,479	45,484	43,162	53,843
Portugal	880	8,394	12,197	13,918	10,572
Rumania	[5]	[5]	[5]	[5]	[5]
Spain	20,946	22,917	31,408	36,044	35,159
Sweden	64	6	51	50	9
U.S.S.R.[3]	2,200,000	2,800,000	2,800,000	3,900,000[6]	4,400,000[6]
Yugoslavia	14,703	14,185	13,985	11,042	10,148
Total[3]	**2,400,000**	**3,000,000**	**3,000,000**	**4,100,000**	**4,600,000**
Asia:					
Burma	—	2,200[3]	7,280	9,610	4,160
China	[5]	[5]	[5]	[5]	[5]
India	988,882	1,447,463	1,637,738	2,125,426	1,344,002
Indonesia	—	—	8,634	20,310	16,442
Iran[7]	10,300[3]	4,379	3,583	4,400[3]	3,436
Japan	153,225	203,942	228,593	214,286	180,155
Korea, Republic of	110	2,477	8,175	3,371	1,744
Malaya	79[4]	215[4]	—	—	—
Philippines	32,933	24,629	22,737	23,708	10,354
Portuguese India	33,053	95,673	122,429	165,347	117,000[3]
Turkey	35,470	55,685	88,745	99,038	54,925
Total[3]	**1,260,000**	**1,848,000**	**2,150,000**	**2,699,000**	**1,771,000**
Africa:					
Angola	10,260	50,918	60,731	72,603	34,865
Belgian Congo	18,728	78,203	141,071	238,831	424,320
French Morocco	316,655	410,316	469,932	473,461	441,413
Gold Coast[4,8]	796,732	902,812	889,491	835,510	515,475
Northern Rhodesia	—	1,411	4,397	7,984	18,872
Southern Rhodesia	—	—	1,580	—	18
South West Africa	1,095	7,231	29,219	40,654	34,066
Spanish Morocco	40	1,237	4,007	1,181	852
Tunisia	—	—	—	—	—
Union of South Africa	871,858	836,510	964,121	912,333	772,862
Total	**2,015,368**	**2,288,638**	**2,564,549**	**2,582,557**	**2,242,743**
Oceania:					
Australia	16,654	8,924	7,917	36,897	31,587
Fiji	269	707	2,251	2,448	11,087
New Caledonia	5,944	22,195	18,484	6,163	—
New Zealand	395	450	357	324	268
Papua	24	45	—	47	—
Total	**23,286**	**32,321**	**29,009**	**45,879**	**42,942**
World total (estimate)	**6,200,000**	**7,800,000**	**8,600,000**	**10,600,000**	**9,700,000**

1. In addition to countries listed, Bulgaria and North Korea have produced manganese ore; data of output are not available, but estimates for them are included in the totals. Czechoslovakia and Egypt report production of manganese ore, but because the manganese content, averages less than 30 per cent and these ores are essentially ferruginous manganese ores; the output is not included in this table. Egypt produced the following tonnages: 1950, 167,737; 1951, 171,259; 1952, 230,564; 1953, 307,331 and 1954, 195,694. Occasionally a small tonnage contains more than 35 per cent manganese.
2. This table incorporates a number of revisions of data published in previous Minerals Yearbook manganese chapters.
3. Estimate.
4. Exports.
5. Data not available; estimate included in total.
6. The 1953 and 1954 production estimated for ore of 35 per cent or more manganese content.
7. Year ending March 20, of year following that stated.
8. Dry weight.

Mercury

During 1955 a small quantity of mercury was produced in the Bridge River district of British Columbia. Previous production had been prior to September, 1944. All of the Canadian production in the past came from the Pinchi mine of The Consolidated Mining and Smelting Company of Canada, Limited, and from the Takla mine of Bralorne Mines Limited, both mines being in the Omineca mining division, British Columbia.

During 1955 the price of mercury on the New York market was quoted at $322 per flask of 76 lb. in January; $318 in April; $275 in July; $275 in October and $280 at the end of the year.

TABLE 41. Production of Mercury, 1940-1955

Year	Pounds	$	Year	Pounds	$
1940	153, 830	369, 317	1943	1, 690, 240	4, 559, 200
1941	536, 304	1, 335, 697	1944	735, 908	1, 210, 375
1942	1, 035, 914	2, 943, 807	1945-1954	Nil	–
			1955	75	250

TABLE 42. Production of Mercury, Consumption, Imports and Exports, 1946-1955

Year	Production	Consumption	Imports	Exports
	Pounds			
1946	–	102, 320	152, 719	57, 005
1947	–	344, 516	412, 649	17, 084
1948	–	552, 216	803, 878	175
1949	–	460, 577	278, 069	8
1950	–	166, 716	614, 005	8, 100
1951	–	171, 886	308, 172	58, 235
1952	–	159, 216	144, 439	1, 500
1953	–	191, 976	196, 412	7, 018
1954	–	203, 756	244, 783	6, 310
1955	75	N.A.	555, 526	3, 781

TABLE 43. Consumption of Mercury by Principal Uses, 1950-1954

Industry	1950	1951	1952	1953	1954
	Pounds				
Pharmaceuticals and fine chemicals	56, 088	32, 041	25, 864	46, 487	46, 968
Heavy chemicals	88, 094	104, 483	103, 385	113, 513	145, 312
Electrical apparatus	6, 534	19, 362	13, 967	11, 598	4, 104
Gold Mines[1]	6, 000	6, 000	6, 000	6, 000	3, 000
Miscellaneous[1]	10, 000	10, 000	10, 000	14, 378	4, 372
Total	**166, 716**	**171, 886**	**159, 216**	**191, 976**	**203, 756**

1. Estimated.

TABLE 44. World Production of Mercury, by Countries

(Taken from the "Minerals Yearbook" published by the United States Bureau of Mines)

Country[1]	1950	1951	1952	1953	1954	1955
	Flasks of 76 pounds[2]					
North America:						
Honduras	—	11	—	—	—	—
Mexico	3, 757	8, 064	8, 732	11, 643	14, 755	29, 878
United States	4, 535	7, 293	12, 547	14, 337	18, 543	18, 955
South America:						
Bolivia (exports)	—	19	—	—	—	—
Chile	314	114	173	100	243	526
Peru	—	—	—	—	77	[3]
Europe:						
Austria	38	26	15	22	27	16
Czechoslovakia	725[4]	725[4]	725[4]	725[4]	[3]	[3]
Italy	53, 346	53, 839	55, 869	51, 373	54, 477	53, 520
Spain	51, 808	44, 480	39, 135	43, 541	43, 135	45, 000[4]
U.S.S.R. (estimate)[5]	11, 600	11, 600	11, 600	12, 300	[3]	[3]
Yugoslavia	14, 368	14, 649	14, 620	14, 272	14, 446	14, 591
Asia:						
China	1, 450[4]	4, 000[4]	4, 000[4]	5, 000[4]	[3]	[3]
Japan	1, 312	1, 847	3, 083	6, 406	10, 269	4, 968
Taiwan (Formosa)	—	—	—	—	44	[3]
Turkey	—	—	—	—	261	841
World total (estimate)	**143, 000**	**147, 000**	**151, 000**	**160, 000**	**182, 000**	**196, 000**

1. Rumania and a few other countries may also produce a negligible amount of mercury, but production data are not available.
2. This table incorporates a number of revisions of data published in previous mercury chapters.
3. Data not available, estimate included in total.
4. Estimate.
5. According to the 42nd annual issue of Metal Statistics (Metallgesellschaft), except 1954.

Molybdenum

Although there are several deposits of molybdenite in Canada the only operating mine was in La Corne township, Quebec. The ore from this mine was milled by Molybdenite Corporation of Canada Limited, to yield molybdenite concentrates, bismuth oxychloride and metallic bismuth. These products were exported for further treatment.

Molybdenum has a widening range of uses, but by far the greater part of the output is used in steel to intensify the effect of other alloying metals, particularly nickel, chromium, and vanadium. These steels usually contain from 0.15 to 0.4 per cent molybdenum, but in some instances the percentage is considerably higher. For high-speed tool steels as much as 9 per cent is added.

Molybdenum alloys are used widely for the hard-wearing and other important parts of aeroplanes. They are used in the automobile industry; in high-grade structural die and stainless steels; in heat and corrosion-resistant alloys; and to some extent in high-speed tool steels. Molybdenum is used in cast iron and in permanent magnets. Much molybdenum wire and sheet is used in the incandescent lamp and in the radio industries, in new alloys suitable for electrical resistance and contacts, and for heating elements containing molybdenum. An appreciable amount of molybdenum is used in the glass industry in which heavy sheets of the metal act as electrodes to conduct the current through the molten glass in the electric furnaces.

TABLE 45. Production of Molybdenite, 1946-1955

Year	Ores milled	Ores and concentrates shipped or used		Total MoS_2 content of shipments
	Tons	Tons	$	Pounds
1946	84, 280	368. 2	295, 640	676, 844
1947	83, 665	396. 0	309, 048	759, 795
1948	—	173. 5	137, 143	304, 762
1949	—	—	—	—
1950	—	108. 9[1]	60, 059	103, 550
1951	40, 139	241	228, 958	381, 596
1952	82, 294	331	409, 831	505, 964
1953	41, 379	184	215, 527	323, 907
1954	105, 924	411	457, 912	752, 417
1955	157, 014	762	823, 954	1, 389, 177

1. Shipped from stockpile.

TABLE 46. World Production of Molybdenum in Ores and Concentrates, by Countries

(Taken from the "Minerals Yearbook" of the United States Bureau of Mines)

Country[1]	1950	1951	1952	1953	1954
	Thousands of pounds[2]				
Australia	7	[3]	[3]	[3]	[3]
Austria	40	42	40	[4]	[4]
Canada	62	229	304	194	586
Chile	2,187	3,803	3,624	3,031	2,646
Finland	—	—	—	—	—
French Morocco	—	—	—	—	—
Hong Kong	—	[3]	[3]	2	[3]
Japan	29	119	196	397	450
Korea, Republic of	—	11	15	20	22
Mexico	—	—	—	[3]	159
Norway	148	276	282	317	335
Peru	2	7	7	7	2
Sweden	13	—	—	—	—
United States	28,479	38,856	43,259	57,242	58,668
Yugoslavia	384	679	1,453	818	1,920
Total (estimate)[1]	**32,000**	**44,800**	**49,800**	**62,600**	**65,500**

1. Molybdenum is also produced in China, North Korea, Romania, Spain and U.S.S.R., but production data are not available. Estimates are included in the total.
2. This table incorporates revisions of data published in previous molybdenum chapters.
3. Less than 0.5 ton.
4. Data not yet available; estimate included in total.

Pitchblende

In 1933 radium was initially produced in Canada from the pitchblende ores of the Northwest Territories. There was very little interest in the uranium contained in these ores until the development of nuclear energy during World War II. Since that time the development and production of radioactive ores have been for uranium. During the development, uranium was found in other types of minerals, thus the title "pitchblende products" may be subject to revision. Data on uranium was restricted from 1941-1953. There remain some restrictions, but the gross value of production is available for publication. The values may include some silver, cobalt, radium salts and nickel, which are recoverable from the uranium ores.

During 1955 uranium ores were mined at Great Bear Lake in the Northwest Territories, Lake Athabasca, Saskatchewan, and Blind River, Ontario. Development work was being done in many areas scattered across the country.

TABLE 47. Canadian Refinery Production of Pitchblende Products, 1934-1955

Year	$	Year	$
1934	159,400	1939	1,121,553
1935	413,700	1940	410,176
1936	605,500	1941-1953	[1]
1937	876,540	1954	26,373,052
1938	1,045,458	1955	26,031,604

1. Not available for publication.

Selenium

The occurrence of selenium is fairly widespread throughout the world, but it is of commercial importance only in its association with copper-sulphide ores from which it is recovered as a by-product in the refining of copper. A variety of uses have been developed for the metal, but relatively small quantities are involved. In Canada refined selenium and certain selenium salts are produced and most of the output is exported.

Canadian production of selenium is obtained from the refineries of The International Nickel Company of Canada, Ltd., at Copper Cliff, Ontario, and Canadian Copper Refineries, Ltd., at Montreal East, Quebec. At Copper Cliff the metal is derived from International Nickel's copper-nickel ores. The plant has a demonstrated capacity of 270,000 pounds of selenium a year and is probably capable of a larger production. At Montreal East selenium is recovered from the treatment of copper anodes made from the copper-gold ores of Noranda, Quebec, and from blister copper from the copper-zinc ores of Hudson Bay Mining and Smelting Co. Ltd., on the Manitoba-Saskatchewan boundary. The Montreal East plant has an annual rated capacity of 450,000 pounds of selenium, which is larger than any other selenium plant in the world. This plant also produces selenium dioxide, sodium selenate and sodium selenite.

Selenium is generally marketed as amorphous powder, but cakes and sticks are also obtainable. Other selenium products marketed are ferro-selenium, sodium selenate, sodium selenite, selenious acid and selenium dioxide. No figures are available to show the relative consumption of selenium by uses. The most important uses are in the glass, rubber and paint industries, but many new uses have been developed as a result of research during the war. Among the more interesting of the latter is the use of selenium in electrical dry plate rectifiers for radar equipment and aircraft generators. Its use in rectifiers for numerous electronic devices, battery charging, electroplating and welding has been increasing.

In the manufacture of glass, selenium is used to neutralize the green colour caused by iron impurities. When sufficient selenium is added the glass turns a ruby colour highly suitable for signal lenses. In the manufacture of rubber, the addition of selenium, in concentrations of from 0.1 to 2.0 per cent, promotes resistance to heat, oxidation and abrasion. It is also used as an accelerator in the vulcanization of synthetic rubber.

The New York price for selenium ranged from $6.00 to $10.00 per pound during 1955.

TABLE 48. Production[1] of Selenium, 1946-1955

Year	Pounds	$	Year	Pounds	$
1946	521,867	949,798	1951	382,603	1,239,633
1947	501,090	937,038	1952	242,030	786,599
1948	390,894	781,788	1953	262,346	1,101,854
1949	318,225	652,361	1954	323,529	1,617,645
1950	261,973	633,975	1955	427,109	3,203,319

1. Includes some recoverable selenium in blister copper not necessarily recovered in the designated year.

TABLE 49. Refinery Output of Selenium From Primary and Scrap Materials, 1946-1955

Year	Pounds	Year	Pounds
1946	497,070	1951	371,060
1947	496,765	1952	254,478
1948	378,316	1953	307,903
1949	288,166	1954	297,479
1950	289,714	1955	422,588

Tantalum-Columbium

The refinery of Borial Rare Metals, Limited, at Cap-de-la-Madeleine, Quebec, treated tantalite-columbite concentrates from the firm's mine in the Northwest Territories. A fire at the mine caused heavy damage and the operations were suspended. Other firms continued to develop the deposits containing columbium, tantalum and uranium at Oka, Quebec, and at Nipissing, Ontario. The E. & M. Journal price quotations in December, 1955, were: Columbite—per lb. of pentoxide, $1.35—$1.65, basis 50% Cb_2O_5, nominal. Columbium metal—no quotation. Tantalum metal—per kilo, base price $137 for rod; sheet $93.

TABLE 50. World Production of Columbium and Tantalum Mineral Concentrates, by Countries[1]

(Taken from "Minerals Yearbook" published by the United States Bureau of Mines)

Country[1]	1952		1953		1954		1955	
	Columbium	Tantalum	Columbium	Tantalum	Columbium	Tantalum	Columbium	Tantalum
	pounds							
Argentina	–		–		11,023[2]	–	10,800[2]	6,614[2]
Australia	16,108		18,124		117,767		125,000[3]	
Belgian Congo[4]	231,042		623,902		967,819		947,978	
Bolivia (exports)	–	–	3,366	–	–	–	2,350	–
Brazil	4,480[5]	53,760[5]	676,200[5]	40,320[5]	124,460[2]	255,533[2]	233,012[2]	221,834[2]
British Guiana	2,000	–	11,200	–	4,480	–	6,720	–
Canada	–		–		90	77	42	390
French Equatorial Africa	3,527		3,514		6,261		2,672	
French Guiana	–		13,228		28,250		–	23,085[2]
Germany, West	–		–		267,957[2]	62,865[2]	849,310[2]	594,030[2]
Madagascar	5,732	–	8,377	–	36,596	–	38,801	–
Malaya	105,280	–	116,480	–	248,640	–	52,910	–
Mozambique	32,652		58,133[6]		94,031		82,884	
Nigeria	2,896,320	2,240	4,388,160	–	6,527,360	22,400	7,047,040	35,840
Norway	–		40,367[2]	–	392,419	–	675,930	–
Portugal	–	35,428[2]	68,121[2]	154,323[2]	148,732[2]	86,279[2]	168,362[2]	6,614[2]
Northern Rhodesia	–		–		–	1,252	–	–
Southern Rhodesia	1,120	10,360	5,100	27,060	18,060	14,300	12,240	4,660
Sierra Leone	–		–		8,960	–	8,960	–
South West Africa	4,400		17,634		22,439	3,868	8,299	2,924
Spain[2]	–	741	4,410	–	–		2,525	11,276
Sweden	–		16,713	4,242	–	19,251	–	–
Uganda[7]	9,094[5]		23,542		23,117		34,003	
Union of South Africa	–	8,000	–	38,000	–	46,000	–	22,000
United States	5,385		14,867		32,829		12,440	
World total (estimate)	**3,430,000**		**5,770,000**		**9,590,000**		**11,250,000**	

1. Frequently the composition (Cb_2O_5-Ta_2O_5) of these mineral concentrates lies in an intermediate position, neither Cb_2O_5 nor Ta_2O_5 being strongly predominant. In such cases the production figure has been centered.
2. United States imports.
3. Estimate.
4. In addition, tin-columbium-tantalum were produced as follows: 1952, 2,813,070 pounds; 1953, 3,575,861 pounds; 1954, 5,970,057 pounds; 1955, 3,941,825 pounds; columbium-tantalum content averaging about 10 per cent.
5. Exports.
6. In addition to figure shown, 132 pounds of samarskite were produced in 1953.
7. In addition, tin-columbium-tantalum concentrates were produced as follows: 1952, 3,248 pounds; 1953, 4,480 pounds; 1954, 6,720 pounds.

Tellurium

Tellurium, like its associated element selenium, is commonly found in small amounts in copper-sulphide and gold ores. The potential production as a by-product in the refining of copper is great, but its recovery is restricted to meet the relatively minor quantities required by industry.

Tellurium is recovered commercially in Canada at the Copper Cliff, Ontario, plant of the International Nickel Company of Canada, Limited, and at the Montreal East refinery of Canadian Copper Refiners, Limited. At Copper Cliff it is recovered from the slimes formed in the process of refining copper produced from the Sudbury nickel-copper ores. At Montreal East it is obtained from the refining of copper anodes made from copper ores at Noranda, Quebec, and from blister copper originating from the copper-zinc ores of Hudson Bay Mining and Smelting Co., Limited, at Flin Flon, on the Manitoba-Saskatchewan boundary.

The price of tellurium was quoted at $1.75 a pound in New York throughout 1955.

TABLE 51. Production[1] of Tellurium, 1946-1955

Year	Pounds	$	Year	Pounds	$
1946	15, 848	24, 405	1951	8, 913	16, 400
1947	9, 194	16, 090	1952	6, 035	10, 259
1948	11, 425	19, 994	1953	4, 694	8, 215
1949	11, 692	21, 046	1954	8, 171	14, 300
1950	10, 075	19, 143	1955	9, 014	15, 774

1. Includes some recoverable tellurium in blister copper, which was not necessarily recovered in the designated year.

TABLE 52. Refinery Output of Tellurium, 1934-1955

Year	Pounds	Year	Pounds	Year	Pounds
1934	5, 130	1941	11, 453	1948	8, 739
1935	16, 425	1942	9, 500	1949	8, 726
1936	35, 618	1943	8, 600	1950	6, 010
1937	40, 913	1944	9, 900	1951	6, 301
1938	51, 254	1945	...	1952	5, 710
1939	3, 554	1946	14, 200	1953	17, 295
1940	3, 491	1947	6, 169	1954	7, 990
				1955	6, 516

TABLE 53. Consumption of Tellurium Metal in Steel and White Metal Foundries, 1945-1954

Year	Steel foundries	White metal foundries	Year	Steel foundries	White metal foundries
	Pounds			Pounds	
1945	–	308	1950	–	962
1946	–	1, 372	1951	–	672
1947	–	974	1952	–	1, 237
1948	–	947	1953	–	510
1949	–	310	1954	–	794

Thallium

In 1955 there were 275 pounds of thallium contained in the compounds shipped, which were valued at $378. This was the first shipment since 1944 when 128 pounds valued at $1,690 were contained in residues produced by Hudson Bay Mining and Smelting Company, Limited, at the Flin Flon smelter, Manitoba. These residues were exported for treatment in foreign plants. Thallium metal was quoted in the United States at $12.50 per pound nominal, December, 1955.

Tin

No economic deposits of tin have been found in Canada up to the present. Minor occurrences, principally of cassiterite (SnO_2), the most important tin mineral, are found in the New Ross area, Lunenburg county, Nova Scotia; in the Sudbury mining division of Ontario; in the Lac du Bonnet district of southeastern Manitoba; in southern British Columbia; in the Mayo district, Yukon, and in the Yellowknife area, Northwest Territories. Those in Nova Scotia, Ontario, Manitoba and the Northwest Territories are found largely in pegmatite dykes. In Yukon crystalline cassiterite is found in placer gravels along numerous creeks and in one small lode deposit. In British Columbia tin is found associated with base metal sulphide ores. The last mentioned type of occurrence is the only one that has been exploited and is the source of the small Canadian production. The lead-zinc-silver orebody of the Sullivan mine, Kimberley, British Columbia, contains a very small percentage of tin. Since 1941 The Consolidated Mining and Smelting Company of Canada, Limited, has been recovering a portion of this tin as a by-product from the concentration of its lead-zinc ore. In 1955 most of the tin concentrates were exported for treatment. Some tin was used to alloy with lead at the Canadian plant.

The New York quotations showed the monthly average price for tin was: January, $0.87; April, $0.91; July, $0.97; October, $0.96; December, $1.07, per pound.

TABLE 54. Production of Tin, 1946-1955

Year	Pounds	$	Year	Pounds	$
1946	874, 186	507, 028	1951	346, 718	494, 073
1947	714, 198	517, 794	1952	212, 113	253, 581
1948	691, 332	688, 567	1953	643, 254[1]	581, 746
1949	619, 117	633, 047	1954	333, 788[1]	263, 359
1950	796, 403	828, 259	1955	492, 781[1]	408, 030

1. Tin content of concentrates and lead-tin alloy.

TABLE 55. Production of New Tin, Domestic Consumption and Imports, 1946-1955

Year	Production	Domestic consumption	Imports	Stocks at end of period
	Tons of 2,000 pounds			
1946	437	4, 152	3, 514	2, 430
1947	357	4, 063	2, 601	3, 152
1948	346	4, 531	4, 029	2, 944
1949	310	4, 835	4, 117	939
1950	398	5, 069	5, 395	1
1951	173	5, 299	6, 872	1
1952	106	4, 693	4, 423	1
1953	322[2]	4, 444[3]	4, 146	1
1954	167[2]	4, 036	4, 296	1
1955	246[2]	4, 500	4, 836	1

1. Not available.
2. Tin content of concentrates and lead-tin alloy.
3. Revised figure.

TABLE 56. Consumption of Tin (Ingots or Bars), by Principal Industries, 1950-1954

	1950	1951	1952	1953	1954
	Tons of 2,000 pounds				
In white metal foundries (solder, babbitt, etc.)	1,953	1,819	1,447	1,870	1,703
In steel plants (chiefly for tinplate)	2,439	3,000	2,819	2,054	1,974
In brass and bronze foundries	178	347	252	250[1]	230
In other industries	499	133	175	270	593
Total	**5,069**	**5,299**	**4,693**	**4,444[1]**	**4,500**

1. Revised figure.

TABLE 57. World Mine Production of Tin (Content of Ore), by Countries

(Taken from "Minerals Yearbook" published by the United States Bureau of Mines)

Country	1950	1951	1952	1953	1954
	Long tons[1]				
North America:					
Canada	356	155	95	488	174
Mexico	440	366	413	476	349
United States	94	88	99	56	200[2]
Total North America	**890**	**609**	**607**	**1,020**	**723**
South America:					
Argentina	267	242	265	158	165[3]
Bolivia (exports)	31,213	33,132	31,959	34,825	28,824
Brazil	180	197	229	209	180[3]
Peru[4]	38	86	31	—	—
Total South America	**31,698**	**33,657**	**32,484**	**35,192**	**29,169**
Europe:					
France	81	93	282	498	531
Germany, East[2]	191	257	395	563	654
Italy	—	—	—	—	—
Portugal[5]	690	933	1,146	1,168	935
Spain	633	940	733	795	654
United Kingdom	890	841	903	1,103	940
Total Europe[6]	**2,485**	**3,064**	**3,459**	**4,127**	**3,714**
Africa:					
Belgian Congo[7]	13,464	13,669	13,795	15,293	15,084
French Cameroon	67	72	87	86	82
French Morocco	—	13	15	9	5
French West Africa	51	65	110	118	72
Mozambique	1	8	3	—	—
Nigeria	8,258	8,529	8,318	8,228	7,926
Northern Rhodesia	4	2	11	7	1
Southern Rhodesia	65	40	30	30	14
South West Africa	100	76	106	210	446
Swaziland	37	32	36	36	34
Tanganyika (exports)	97	67	47	45	39
Uganda (exports)	192	118	110	92	86
Union of South Africa	643	761	935	1,360	1,315
Total Africa	**22,979**	**23,452**	**23,603**	**25,514**	**25,104**
Asia:					
Burma	1,520	1,400	1,600	1,400	950
China[3]	7,500	7,500	8,600	9,600	10,000
Indochina	49	92	156	264	110
Indonesia	32,102	30,986	35,003	33,822	35,861
Japan	326	426	638	732	715
Malaya	57,537	57,167	56,838	56,254	60,690
Thailand	10,364	9,502	9,479	10,126	9,776
Total Asia	**109,398**	**107,073**	**112,314**	**112,198**	**118,102**
Australia	1,854	1,559	1,611	1,553	1,979
Total (estimate)[6]	**169,300**	**169,400**	**174,100**	**179,600**	**178,800**

1. This table incorporates a number of revisions of data published in previous tin chapters.
2. Preliminary.
3. Estimated by authors of the chapter to appear in "Minerals Yearbook", and in a few instances, from the Statistical Bulletin of the International Tin Study Group, The Hague.
4. Minor constituent of other base metal ores.
5. Excluding mixed concentrates.
6. Excluding production of U.S.S.R.
7. Including Ruanda-Urundi.

Titanium

At Lac Tio, Quebec, the Quebec Iron and Titanium Corporation mined ilmenite and shipped the ore by rail to Havre St. Pierre on the St. Lawrence and thence by boat to the smelter at Sorel, Quebec. There were 444,000 tons of ore received at the smelter. About 362,500 tons were treated to yield about 116,000 tons of iron (remelt) and over 162,500 tons of slag. The slag, having a titanium dioxide content of about 71 per cent, was exported for further treatment. General statistics on the mining of ilmenite are included in the Miscellaneous Metals Industry but the statistics on smelting are included in The Smelting and Refining Industry.

For several years titanium-bearing ores have been shipped from the Baie St. Paul area in Quebec for treatment in the United States.

Some metallic titanium was produced from imported raw material by the Dominion Magnesium Limited, Haley, Ontario. Research work on titanium was carried on by Shawinigan Water and Power Company Limited, Quebec Metallurgical Industries Limited, Thompson Products Limited and Atlas Steels Limited.

The paint industry uses, in addition to titanium white, a considerably larger amount of mixed pigments containing titanium, also imported from the United States. Titanium white has many other uses, such as: to make paper opaque, to make rubber white, in ceramic glazes, for printing inks, in linoleum, in cosmetics, and to de-lustre artificial silk.

Titanium is used in many other forms. Ferro-titanium and ferrocarbon-titanium are used under special circumstances to purify steel. It is all imported from the United States.

Prices (nominal) f.o.b. U.S. Atlantic ports at the end of 1955 were: Ilmenite, 56 to 60% TiO_2, $18 to $20 per gross ton; rutile, 94% TiO_2, 10 to 15 cents per pound. The nominal quotation for titanium metal, 99.3 per cent, was $3.45 per pound.

TABLE 58. Producers' Shipments of Titanium Ore[1] to Outside Customers, 1946-1955

Year	Short tons	$	Year	Short tons	$
1946	1,406	7,735	1951	1,674	9,790
1947	7,104	38,036	1952	51	459
1948	4,441	21,091	1953	9,292	80,085
1949	540	2,892	1954	1,541	9,462
1950	1,253	7,706	1955	1,464	10,634

1. All from Quebec.

TABLE 59. Imports of "Antimony Oxide, Titanium Oxide and White Pigments Containing Not Less Than 14 Per Cent by Weight of Titanium", 1946-1955

Year	From the United Kingdom		From the United States		Total imports	
	Pounds	$	Pounds	$	Pounds	$
1946	76,800	11,678	23,854,188	2,182,007	23,930,988	2,193,685
1947	17,920	4,862	27,294,577	2,960,964	27,312,497	2,965,826
1948	121,968	25,057	39,119,325	4,572,006	39,292,704	4,610,340
1949	1,436,162	254,809	40,150,356	4,902,730	41,586,518	5,157,539
1950	6,275,776	935,706	47,974,645	6,117,925	54,250,421	7,053,631
1951[1]	7,192,312	1,623,779	52,103,681	6,838,500	59,295,993	8,462,279
1952[1]	5,471,764	1,090,786	42,938,755	5,365,582	48,410,519	6,456,368
1953[1]	15,860,430	2,819,931	47,939,283	5,646,914	63,799,713	8,466,845
1954[1]	18,784,144	3,381,482	45,428,077	5,747,907	64,212,221	9,129,389
1955[1]	20,967,494	3,968,607	50,629,850	6,536,335	71,597,344	10,504,942

1. Excludes antimony oxide.

TABLE 60. Consumption of Titanium Oxide, by Industries, 1953 and 1954

Industry	1953		1954	
	Pounds	Cost at works	Pounds	Cost at works
		$		$
Paints:				
Extended titanium dioxide pigments	25,814,234	2,421,222	26,309,370	2,528,698
Titanium dioxide	21,190,312	4,764,592	22,958,423	5,482,788
Polishes and dressings	226,624	47,826	280,281	65,655
Pulp and paper	2,322,000	485,249	2,494,000	543,598
Linoleum and oilcloth	3,539,934	495,220	4,032,210	620,542
Rubber goods	1,067,355	244,107	1,196,355	264,289
Miscellaneous non-metallic minerals	774,658	142,947	662,102	132,879
Total accounted for	**54,935,117**	**8,601,163**	**57,932,741**	**9,638,449**

TABLE 61. World Production of Titanium Concentrates (Ilmenite and Rutile), by Countries[1]
(Taken from the "Minerals Yearbook" published by the United States Bureau of Mines)

Country	1950	1951	1952	1953	1954
	Short tons				
Ilmenite					
Australia[2] (sales)	56	1,403	52	—	[3]
Brazil	—	—	—	—	—
Canada	3,502[4]	21,203[4]	42,192[4]	146,614[4]	124,162[4]
Egypt	287	359	2,202	843	248
India	238,183	250,975	251,883	240,946	186,612[5]
Japan[6]	—	—	—	2,028	2,627
Malaya[5]	27,905	48,712	24,302	29,758	50,114
Norway	115,908	116,139	130,370	141,220	164,448
Portugal	73	186	476	746	543
Senegal	869	4,311	5,095	3,858	13,779
Spain	702	772	1,410	1,582	1,269
United States[7]	468,320	535,835	528,588	513,696	547,711
World total, ilmenite (estimate)	**857,000**	**980,000**	**987,000**	**1,081,000**	**1,092,000**
Rutile					
Australia	19,825[8]	39,170[8]	41,800[8]	42,604	50,018
Brazil[5]	6	—	19	—	—
French Cameroon	28	119	324	58	179[5]
French Equatorial Africa	7	—	—	—	—
India	41	51	164	117	117
Norway	34	20	47	3	[3]
Senegal	—	3	29	—	—
United States	3,535	7,189	7,125	6,825	7,411
World total, rutile	**27,500**	**46,600**	**49,500**	**49,600**	**57,800**

1. This table incorporates a number of revisions of data published in previous titanium chapters.
2. Due to high chromium content in the ore, only sales are shown.
3. Data not available; estimate included in totals.
4. Includes titanium slag containing approximately 70 per cent TiO_2.
5. Exports.
6. Represents titanium slag.
7. Includes a mixed product containing altered ilmenite, leucoxine and rutile.
8. Estimated rutile content of all rutile-bearing concentrates.

TABLE 62. Consumption of Ferrotitanium in the Manufacture of Steel, 1945-1954

Year	Tons	$	Year	Tons	$
1945	656	123,975	1950	143	30,664
1946	416	73,485	1951	164	50,641
1947	500	86,228	1952	229	97,827
1948	442	81,129	1953	213	50,433
1949	142	29,067	1954	171	50,166

Tungsten

The major portion of the tungsten concentrates produced originated in British Columbia. In New Brunswick the Burnt Hill Tungsten Mines Ltd., operated a mine at Cross Creek, York county. In earlier years some scheelite was shipped from the gold mines in northern Ontario. No recent shipments have been made by former producers in the Yukon territory.

As an alloying metal in steel, tungsten (usually as ferrotungsten, but sometimes as calcium tungstate or scheelite concentrate) is used essentially to impart hardness and toughness, which are maintained even when the steel is heated to a high temperature. Almost 80 per cent of the consumption of tungsten in the United States is used for the production of high-speed steels for cutting tools, in which the tungsten content is 15 to 20 per cent. Minor amounts of tungsten are used in steels for dies, valves and valve seats for internal combustion engines and for permanent magnets. Stellite, the best known non-ferrous alloy, contains 10 to 15 per cent tungsten with higher percentages of chromium and cobalt. Tungsten carbide is widely used as an extra hard cutting tool and is now being used as inserts into detachable bits for rock-drilling. Pure tungsten is used in lamp filaments, in radio tubes, contact points, etc.

In United States a price was established at $63 per short ton unit of WO_3 to mines in United States. Prices to foreign countries, at U.S. ports, duty extra, were wolfram, $30 to $34; scheelite, $31 to $34 per short ton unit.

TABLE 63. Production (Commercial Shipments) of Tungsten Concentrate, 1946-1955

Year	Concentrate	WO_3 content	Value
	Pounds		$
1946	–	–	–
1947	668,000	496,023	680,792
1948	1,409,297	1,046,160	1,046,160
1949	334,000	252,380	252,380
1950	1,886,000[1]	284,078	160,343
1951	4,145	2,833	7,098
1952	3,670,686	1,434,641	4,307,879
1953	6,307,717	2,446,028	5,689,160
1954	3,237,748	2,170,633	5,795,781
1955	3,255,100	1,942,770	5,508,437

1. Includes export of considerable low-grade material to United States.

TABLE 64. Consumption of Ferrotungsten in Steel Furnaces, 1945-1954

Year	Short tons	Cost at works	Year	Short tons	Cost at works
		$			$
1945	138	455,317	1950	117	302,872
1946	260	402,174	1951	364	2,726,887
1947	366	888,904	1952	212	1,609,590
1948	187	590,584	1953	49	275,761
1949	190	428,535	1954	38	118,280

TABLE 65. World Production of Tungsten Ores, by Countries[1], of Concentrates Containing 60 per WO_3

(Taken from the "Minerals Yearbook" published by the United States Bureau of Mines)

Country	1950	1951	1952	1953	1954
	Short tons				
North America:					
Canada	237	2	1,245	2,037	1,668
Mexico	74	358	488	752	601
United States (shipments)	4,820	6,275	7,611	9,591	13,713
Total North America	**5,131**	**6,635**	**9,344**	**12,380**	**15,982**[2]
South America:					
Argentina	26	165	474	661	717
Bolivia (exports)	2,739	2,996	4,086	4,216	4,900
Brazil (exports)	837	1,567	1,967	2,146	1,650[3]
Peru	569	517	644	1,001	948[4]
Total South America	**4,171**	**5,245**	**7,171**	**8,024**	**8,200**
Europe:					
Finland	22	9	52	24	139
France	503	866	1,043	1,227	1,043
Italy	2	6	6	6	33
Norway	—	—	13	9	—
Portugal	2,756	5,675	5,824	5,589	4,721
Spain	937	2,814	6,040	3,252	2,260
Sweden	399	422	371	485	440
U.S.S.R.[3]	8,300	8,300	8,300	8,300	8,300
United Kingdom	84	67	61	67	[5]
Yugoslavia	—	—	—	132	110[3]
Total Europe (estimate)	**13,000**	**18,200**	**21,700**	**19,100**	**17,000**
Asia:					
Burma	1,025	1,816	2,425	2,205	1,300[3]
China[3]	13,228	17,416	22,046	18,739	19,842
Hong Kong	—	25	115	176	32
India	2	17	11	17	[5]
Japan	26	183	531	819	892
Korea; Republic of	992	1,433	4,519	8,267	4,630
North Korea	1,100[3]	1,300[3]	1,300[3]	1,650[3]	1,650[3]
Malaya, Federation of	30	60	87	162	127
Thailand	1,300[3]	1,500[3]	1,750[3]	1,929	1,323
Total Asia (estimate)	**17,700**	**23,800**	**32,800**	**34,000**	**29,800**
Africa:					
Algeria	—	24	54	33	—
Belgian Congo[6]	441	720	1,113	1,403	1,685
Egypt	—	8	23	15	4
French Morocco	8	42	20	13	14
Nigeria	6	25	25	20	1
Southern Rhodesia	71	255	463	419	281
South West Africa	4	36	130	165	228
Tanganyika (exports)	17	17	15	13	6
Uganda (exports)	240	176	157	197	204
Union of South Africa	106	207	290	425	675
Total Africa	**893**	**1,510**	**2,290**	**2,703**	**3,098**
Oceania:					
Australia	1,361	2,076	2,393	2,456	2,563
New Zealand	26	39	69	44[3]	33[3]
Total Oceania	**1,387**	**2,115**	**2,462**	**2,500**	**2,596**
World total (estimate)	**42,300**	**57,500**	**75,800**	**78,700**	**76,700**

1. This table incorporates a number of revisions of data published in previous Minerals Yearbook tungsten chapters.
2. The production total of tungsten for the year 1954 will be compared with the Bureau of Census total for this commodity, when it is available.
3. Estimate.
4. Exports.
5. Negligible.
6. Including Ruanda-Urandi.

Vanadium

Some of the magnetites of the Rainy River district in Ontario are known to contain relatively small quantities of vanadium, and some research has been conducted as to its economic recovery. There is no production of either the metal or its ores in Canada at the present time.

The principal world occurrences of vanadium are in Arizona, Colorado and Utah in the United States; Minasragra in Peru; Broken Hill in northern Rhodesia; and Grootfontein district in South West Africa.

The metal is employed chiefly in the manufacture of alloy steels and irons. It is also used in the form of ammonia meta-vanadate as a catalyst in the manufacture of sulphuric acid, and in the non-ferrous, glass, ceramic and colour industries.

The United States Bureau of Mines reports that vanadium has been and is now being obtained by some countries from other than vanadium ores, including petroleum, bauxite, phosphate rock and titaniferous magnetites.

Vanadium ore was quoted December, 1955, at 31 cents per pound contained V_2O_5, f.o.b. shipping point, by "E & M J Metal and Mineral Markets", New York. Vanadium metal was quoted at $3.45 per pound.

TABLE 66. World Production of Vanadium in Ores and Concentrates

(Source: "Minerals Yearbook" published by the United States Bureau of Mines)

Country	1950	1951	1952	1953	1954
	Short tons				
North America:					
United States (shipments)[1]	2,298	3,088	3,600	4,643	4,930
South America:					
Argentina	8[2]	8[2]	8[2]	8[2]	8[2]
Peru	481	495	482	349	195
Total	**489**	**503**	**490**	**357**	**203**
Africa:					
Rhodesia, Nyasaland, Northern Rhodesia	—	96	47	—	—
South West Africa	325	583	688	596	633
Total	**325**	**679**	**735**	**596**	**633**
World total (estimate)[3]	**3,112**	**4,270**	**4,825**	**5,596**	**5,766**

1. Includes vanadium recovered as a by-product of phosphate-rock mining.
2. Estimate.
3. Total represents data only for countries shown in table and excludes vanadium in ores produced in French Morocco, Spain and U.S.S.R. for which figures are not available; the total also excludes quantities of vanadium recovered as by-products from other ores and raw materials.

Zirconium

Zirconium ores are not mined in Canada. The Dominion Magnesium Limited, Haley, Ontario, produced zirconium from imported raw materials.

Zirconium is important in certain steel making, ordinarily being added in the form of zirconium-ferrosilicon alloy; its function is that of a powerful deoxidizer, degasifier and grain refiner; zirconium-treated steel being particularly suitable for tools subject to violent stresses, such as stock drills.

Prices quoted in December, 1955, were: zircon ore, 65 per cent ZrO_2, $48 to $49 per long ton, at Atlantic seaboard; zirconium sponge, $10 per pound.

TABLE 67. World Production of Zirconium Ores and Concentrates, by Countries

(Source: "Minerals Yearbook" published by the United States Bureau of Mines)

Country	1950	1951	1952	1953	1954
	Short tons				
Australia[1]	24,120	47,006	32,893	31,655	44,143
Brazil[2]	3,325	3,854	4,378	1,406[3]	1,408[4]
Egypt	105	4	133	263	109
French West Africa	243	32	5	1,047	1,012
India	5	5	5	5	5
United States	5	5	5	23,904	16,322

1. Estimated zircon content of all zircon-bearing concentrates.
2. Chiefly baddeleyite.
3. Exports.
4. Imports into United States.
5. Not available for publication.

Directory of Firms in the Miscellaneous Metal Mining Industry, 1955

Name of firm and product	Head office address	Location of mine or plant
Aluminum:		
Aluminum Company of Canada Limited	1700 Sun Life Building, Montreal, Quebec.	Arvida, Quebec; Shawinigan Falls, Quebec; Ile Maligne, Quebec; Beauharnois, Quebec; Kitimat, British Columbia
Antimony:		
Consolidated Mining & Smelting Company of Canada Ltd.	215 St. James St., Montreal, Quebec	Trail, British Columbia
Berium:		
Dominion Magnesium Ltd.	Haley, Ontario	Haley, Ontario
Beryl:		
Canadian Beryllium Mines & Alloys Ltd.[2]	100 Adelaide St. W., Toronto, Ontario	Renfrew County, Ontario
Bismuth:		
Deloro Smelting & Refining Co. Ltd.[1]	900 Victoria Building, Ottawa, Ontario	Deloro, Ontario
Consolidated Mining & Smelting Company of Canada Ltd.	215 St. James St., Montreal, Quebec	Trail, British Columbia
Molybdenite Corp. of Canada Ltd.	59 St. James St. W., Montreal, Quebec	La Corne Twp., Quebec
Cadmium		
Consolidated Mining & Smelting Company of Canada Ltd.	215 St. James St., Montreal, Quebec	Trail, British Columbia
Hudson Bay Mining & Smelting Co. Ltd.	500 Royal Bank Building, Winnipeg, Manitoba	Flin Flon, Manitoba
Britannia Mining & Smelting Co. Ltd.	Britannia Beach, British Columbia	Britannia Beach, British Columbia
Canadian Exploration Ltd.	Royal Bank Bldg., Vancouver, British Columbia	Salmo, British Columbia
Caledonia Mine, c/o G.E. McCready	Kaslo	Ainsworth
Carnegie Mines of British Columbia Ltd.	1126 Sherbrooke St. W., Montreal, Quebec	Slocan, British Columbia
Cody Reco Mines Ltd.	11 King St. W., Toronto, Ontario	Slocan, British Columbia
Cuprus Mines Ltd.	500 Royal Bank Bldg., Winnipeg, Manitoba	Flin Flon, Manitoba
Giant Mascot Mines Ltd.	908 Royal Bank Bldg., Vancouver, British Columbia	Spillimacheen
Mackeno Mines Ltd.	100 Adelaide St. W., Toronto, Ontario	Mayo
Sheep Creek Gold Mines Ltd.	413 Granville St., Vancouver, British Columbia	Zincton, British Columbia
Silver Standard Mines Ltd.	602 W. Hastings St., Vancouver, British Columbia	Hazelton, British Columbia
Sil-Van Consolidated Mining & Milling Ltd.	213 – 602 W. Hastings St., Vancouver 2, British Columbia	Smithers, British Columbia
Slocan Van Roi Mines Ltd.	532 Burrard St., Vancouver, British Columbia	Silverton, British Columbia
Sunshine Lardeau	717 – 744 W. Hastings St., Vancouver 2, British Columbia	Beaton, British Columbia
Tulsequah Mines Ltd.	Trail, British Columbia	Tulsequah, British Columbia
Violamac Mines (B.C.) Ltd.	New Denver, British Columbia	New Denver, British Columbia
Western Exploration Co. Ltd.	Silverton, British Columbia	Silverton, British Columbia
United Keno Hill Mines Ltd.	85 Richmond St. W., Toronto, Ontario	Elsa, Yukon
Cerium:		
Atlin-Ruffner Mines (B.C.) Ltd.	510 W. Hastings St., Vancouver, British Columbia	Parry Sound, Ontario
Chromite:		
Colonial Chrome Co. Ltd.[2]	420 Lexington Ave., New York, N.Y., U.S.A.	Black Lake, Quebec
Gunnar Gold Mines Ltd.[2]	80 King St., Toronto, Ontario	Bird River, Manitoba
Iron Ore:		
Dominion Wabana Ore Ltd.	Wabana, Newfoundland	Bell Island, Newfoundland
Hollinger North Shore Exploration Co. Ltd.	721 Royal Bank Building, Montreal, Quebec	New Quebec
Iron Ore Company of Canada	810 Cote de Liesse Road, Montreal, Quebec	New Quebec, Labrador
Labrador Mining & Exploration Co. Ltd.	360 St. James St. West, Montreal, Quebec	Labrador
Aconic Mining Corp.[1]	455 Craig St. West, Montreal, Quebec	Natashquan
Atlantic Iron Ores Ltd.[1]	326 Bonaventure St., Three Rivers, Quebec	Ungava Bay
Bellechasse Mining Corp. Ltd.[1]	620 Cathcart St., Montreal, Quebec	Saguenay
Cartier Mining Co. Ltd.[1]	603 Sterling Tower, Toronto, Ontario	Saguenay
Canadian Javelin Ltd.[1]	1010 Ste. Catherine St. W., Montreal, Quebec	Wabush Lake
Consolidated Fenmore Iron Mines Ltd.[1]	66 King St. W., Toronto, Ontario	Ungava
Consolidated Premium Iron Ores Ltd.[1]	80 King St. W., Toronto, Ontario	Ungava
Gravimetric Surveys Ltd.[1]	53 Queen St., Ottawa, Ontario	Swan Lake
Holhannah Mines Ltd.[1]	360 St. James St. W., Montreal, Quebec	New Quebec
International Iron Ores Ltd.[1]	326 Bonaventure St., Three Rivers, Quebec	Ungava Bay
New Athona Mines Ltd.[1]	25 Adelaide St. W., Toronto, Ontario	Ungava
Oceanic Iron Ore of Canada Ltd.[1]	44 King St. W., Toronto, Ontario	Labrador
Quebec Labrador Development Co. Ltd.[1]	100 Adelaide St. W., Toronto, Ontario	Duverney Twp.
Quebore Iron Mines Ltd.[1]	44 King St. West, Toronto, Ontario	Estrees Twp.
Algoma Ore Properties Ltd.	Cornwall Building, Sault Ste. Marie, Ontario	Algoma district, Ontario
Bamoos Lake Mines Ltd.[1]	20 Temperance St., Toronto, Ontario	Port Arthur
Bethlehem Mines Corporation	701 East Third St., Bethlehem, Pa., U.S.A.	Marmora, Ontario
Caland Ore Company[1]	38 S. Deaborn St., Chicago, U.S.A.	Rainy River, Ontario
Caral Mining Co. Ltd.[1]	7 King St. W., Toronto, Ontario	Thunder Bay
Clarken Development Ltd.	49 Wellington St. E., Toronto, Ontario	Hastings Co., Ontario
Calmar Mines Ltd.	Haileybury, Ontario	Hastings Co., Ontario
Canadian Cliffs Ltd.[1]	Port Arthur, Ontario	Temiscamie River
Head of the Lakes Iron Ltd.[1]	85 Richmond St. W., Toronto, Ontario	Quetico Park, Ontario
Iron Bay Mines Ltd.	Haileybury, Ontario	Bruce Lake
Jalore Mining Co. Ltd.[1]	68 Yonge St., Toronto, Ontario	Michipicoten, Ontario
Lake Superior Iron Ltd.	159 Craig St., Montreal, Quebec	Muriel River
Marmoraton Mining Co. Ltd.	701 East Third St., Bethlehem, Pa., U.S.A.	Marmora
Steep Rock Iron Mines Ltd.	25 King St. W., Toronto, Ontario	Rainy River District, Ontario
Utah Co. of the Americas (Argonaut Division)	Box 1000, Campbell River, British Columbia	Comox, British Columbia
Texada Mines Ltd.	Box 35, Vananda, British Columbia	Texada Island, British Columbia
Belcher Mining Corp. Ltd.[1]	80 King St. W., Toronto, Ontario	Belcher Islands, N.W.T.
Indium:		
Consolidated Mining & Smelting Company of Canada Ltd.	215 St. James St., Montreal, Quebec	Trail, British Columbia
Manganese:		
Quebec Manganese Mines Ltd.[2]	231 St. James St. W., Montreal, Quebec	Magdalen Islands, Quebec
Stratmat Ltd.[1]	620 Cathcart St., Montreal, Quebec	Woodstock, New Brunswick

Directory of Firms in the Miscellaneous Metal Mining Industry, 1955 – Continued

Name of firm and product	Head office address	Location of mine or plant
Magnesium:		
Dominion Magnesium Ltd.	67 Yonge St., Toronto, Ontario	Haley, Ontario
Aluminum Co. of Canada Ltd.	1700 Sun Life Building, Montreal, Quebec	Arvida, Quebec
Mercury:		
Bralorne Mines Ltd.[2]	555 Burrard St., Vancouver, British Columbia	Omineca district, British Columbia
Consolidated Mining & Smelting Company of Canada Ltd.[2]	215 St. James St., Montreal, Quebec	Pinchi Lake, British Columbia
Sevrens, Wm.	Bridge River	Tyax Lake
Molybdenite:		
Acme Molybdenite Mining Co. Ltd.[1]	402 Bank of Canada Bldg., Montreal, Quebec	Maniwaki, Quebec
Molybdenite Corp. of Canada Ltd.	31 ouest St. Jacques, Montreal, Quebec	La Corne, Quebec
Portneuf Mineral Corp. Ltd.[1]	437 St. James St. W., Montreal, Quebec	Portneuf Co., Quebec
Quebec Metallurgical Industries Ltd.[1]	88 Metcalfe St., Ottawa, Ontario	Clarendon Twp., Quebec
Newmont Mining Corp. of Canada Ltd.[1]	173 Portage Ave., Winnipeg, Manitoba	Preissac Twp., Quebec
Selenium – Tellurium:		
International Nickel Co. of Canada Ltd.	Copper Cliff, Ontario	Copper Cliff, Ontario
Canadian Copper Refiners Ltd.	1600 Royal Bank Building, Toronto, Ontario	Montreal East, Quebec
Tantalum – Columbite:		
Advance Red Lake Gold Mines Ltd.	347 Bay St. Toronto, Ontario	St-Benoit, Quebec
Bouscadillac Gold Mines Ltd.	85 Richmond St. W., Toronto, Ontario	L'Annonciation, Quebec
Delmico Mines Ltd.	25 Adelaide St. W., Toronto, Ontario	Oka, Quebec
Frederick Mining & Development Ltd.	44 King St. W., Toronto, Ontario	Oka, Quebec
Headway Red Lake Gold Mines Ltd.	67 Yonge St., Toronto, Ontario	Oka, Quebec
Martex Mining and Development Ltd.	Campbellton, New Brunswick	Oka, Quebec
Main Oka Mining Corp.	159 ouest, rue Craig, Montreal, Quebec	Oka, Quebec
Montrose Securities Ltd.	159 ouest, rue Craig, Montreal, Quebec	Oka, Quebec
New Alger Mines Ltd.	80 Richmond St. W., Toronto, Ontario	Oka, Quebec
Oka Rare Metals Mining Co. Ltd.	320 Bay St., Toronto, Ontario	Oka, Quebec
Oka Uranium & Metals Ltd.	159 ouest, rue Craig, Montreal, Quebec	Oka, Quebec
Ontario Nickel Mines Ltd.	100 Adelaide St. West, Toronto, Ontario	Oka, Quebec
Quebec Tantalum & Lithium Mining Co. Ltd.	44 King St. W., Toronto, Ontario	Figuery Twp., Quebec
Sapphire Petroleums Ltd.	15 King St. E., Toronto, Ontario	Oka, Quebec
St. Lawrence River Mines Ltd.	159 ouest, rue Craig, Montreal, Quebec	Oka, Quebec
Trebor Mines Ltd.	100 Adelaide St. W., Toronto, Ontario	Ile Aux Tourtes
Twin Mountain Uranium Mines Ltd.	302 Bay St., Toronto, Ontario	Oka, Quebec
Beaucage Mines Ltd.	170 Regina St., North Bay, Ontario	Nipissing, Ontario
Ontario Rare Metal Mines Ltd.	44 King St. W., Toronto, Ontario	Algoma, Ontario
Boreal Rare Metals Ltd.	144 St. James St., Montreal, Quebec	Hearn Channel, Yellowknife
Thallium:		
Hudson Bay Mining & Smelting Co. Ltd.[1]	500 Royal Bank Building, Winnipeg, Manitoba	Flin Flon, Manitoba
Tin:		
Consolidated Mining & Smelting Company of Canada Ltd.	215 St. James St., Montreal, Quebec	Trail, British Columbia
Mountain Crest Mines Ltd.[2]	1445 MacKay St., Montreal, Quebec	Charlevoix, Quebec
Titanium Ore:		
American Titanic Iron Ore Co.	Baie St. Paul, Quebec	St. Urbain, Quebec
Baie St. Paul Titanic Iron Ore Co.	Baie St. Paul, Quebec	St. Urbain, Quebec
Berslimis Mining Co.[1]	10-16 Blvd. Des Capucins, Quebec	Saguenay Co., Quebec
Laurentian Titanium Mines Ltd.[1]	4462 St. Denis St., Montreal, Quebec	Wexford & Chertsey Twps., Quebec
Pershing Amalgamated Mines Ltd.[1]	1410 Stanley St., Montreal, Quebec	Terrebonne Co., Quebec
Quebec Iron and Titanium Corp.	Sorel, Quebec	Lac Tio, Quebec
Red Lake Mines Ltd.	3539 Park Ave., Montreal, Quebec	Wexford, Quebec
Continental Iron & Titanium Mining Ltd.	4202 St. Urbain St., Montreal, Quebec	Chilton, Quebec
St. Lawrence Iron & Titanium Mines Ltd.[1]	1200 St. Alexander St., Montreal, Quebec	St. Urbain, Quebec
Tungsten Concentrates:		
Burnt Hill Tungsten Mines Ltd.	510 McGill St., Montreal, Quebec	Cross Creek, New Brunswick
Hollinger Consolidated Gold Mines Ltd.[1]	Timmins, Ontario	Timmins, Ontario
Canadian Exploration Ltd.	Royal Bank Building, Vancouver, British Columbia	Salmo, British Columbia
Quebec Tungsten Ltd.	111 Côte-de-la-Montagne, Quebec, Quebec	Dalquier, Quebec
Tungsten Corporation of Canada[2]	43 King St. W., Toronto, Ontario	Outpost Island, Northwest Territories
Uranium:		
New Brunswick:		
Aumacho River Mines Ltd.	25 Adelaide St. W., Toronto, Ontario	Aumacho River, New Brunswick
New Brunswick Uranium Metals & Mining Ltd.	44 King St. W., Toronto, Ontario	Harvey, New Brunswick
Quebec:		
Aldfield Mining Corp. Ltd.	204 Notre Dame St. W., Montreal	Aldfield Twp., Quebec
Barnet Mines Ltd.	56 Sparks St., Ottawa, Ontario	Metagami, Quebec
Calumet Contact Uranium Mines Ltd.	159 ouest, rue Craig, Montreal	Ile Calumet, Quebec
Chess Uranium Corp.	5616 Park Ave., Montreal	St-Hilaire, Quebec
Coulee Lead & Zinc Mines Ltd.	67 Yonge St., Toronto, Ontario	Oka, Quebec
Fort Coulonge Mining Corp.	159 ouest, rue Craig, Montreal	Ile Calumet, Quebec
Grand Manitou Mines Ltd.	159 ouest, rue Craig, Montreal	Oka, Quebec
Huddersfield Uranium & Minerals Ltd.[1]	159 ouest, rue Craig, Montreal	Huddersfield, Quebec
Kinmount Uranium Mines Ltd.[1]	100 Adelaide St. W., Toronto, Ontario	Clapham Twp., Quebec
Lachance Mining Inc.[1]	57 St. James St. W., Montreal	St. Augustin, Quebec
Maniwaki Kid Uranium Mining Corp.[1]	455 Craig St. W., Montreal	Egan Twp., Quebec
Marlow Mines Ltd.[1]	1557 Mackay St., Montreal	Lacoste Twp., Quebec
Molybdenum Corp. of America[1]	500 Fifth Ave., New York, U.S.A.	Oka, Quebec
Mount Bruno Assoc. Ltd.[1]	485 McGill St., Montreal	Chambly, Quebec
New Manitoba Gold Mines Ltd.[1]	320 Bay St., Toronto, Ontario	Oka, Quebec

Directory of Firms in the Miscellaneous Metal Mining Industry, 1955 — Continued

Name of firm and product	Head office address	Location of mine or plant
Uranium — Continued:		
Quebec — concluded:		
Ottawa Uranium & Copper Mining Corp.[1]	477 St. Francois Xavier St., Montreal	Eardley Twp., Quebec
Pool Mining Corp.[1]	985 Sherbrooke St. W., Montreal	Huddersfield, Quebec
Quebec North Mines Ltd.[1]	1557 Mackay St., Montreal	Lacoste, Quebec
Roche Long Lac Gold Mines Ltd.[1]	372 Bay St., Toronto, Ontario	Oka, Quebec
Saguenay Mining & Smelting Co. Ltd.[1]	1557 Mackay St., Montreal	Charlevoix, Quebec
Severin Auf der Maur, J.[1]	1557 Mackay St., Montreal	Lacoste Twp., Quebec
Soma Duvernay Gold Mines Ltd.[1]	507 Place d'Armes, Montreal	Huddersfield, Quebec
Stanleigh Uranium Corp. Ltd.[1]	372 Bay St., Toronto, Ontario	Gatineau Co., Quebec
St-Simeon Uranium Corp.[1]	1200, rue St-Alexandre, Montreal	St-Simeon, Quebec
Yates Uranium Mines Inc.[1]	132 St. James St. W., Montreal	Huddersfield, Quebec
Ontario:		
Alba Explorations Ltd.[1]	100 Adelaide St. W., Toronto	Thunder Bay
Algom Uranium Mines Ltd.[1]	111 Richmond St. W., Toronto	Elliot Lake
Allstate Uranium Corp.[1]	100 Adelaide St. W., Toronto	Dryberry Lake
Anabar Mining & Development Co. Ltd.[1]	604 Queen St. E., Toronto	Algoma
Aumacho River Mine Ltd.[1]	25 Adelaide St. W., Toronto	Cardiff
Bancroft Uranium Mines Ltd.[1]	25 Melinda St., Toronto	Cardiff
Belfast Mines Ltd.[1]	314 Bathurst St., Toronto	Blind River
Beaucage Mines Ltd.[1]	170 Regina St., North Bay	Nipissing
Beaupas Mines Ltd.[1]	159 ouest rue Craig, Montreal, Quebec	Blind River
Bicroft Uranium Mines Ltd.[1]	25 Adelaide St. W., Toronto	Cardiff Twp.
Blue Rock Cerium Mines Ltd.[1]	372 Bay St., Toronto	Tory Hill
Bracemere Mines Ltd.[1]	357 Bay St., Toronto	Blind River
Brewis Red Lake Mines Ltd.[1]	145 Yonge St., Toronto	Parter Twp.
Buckles Algoma Uranium Mines Ltd.[1]	44 King St. W., Toronto	Blind River
Bunker Hill Extension Mines Ltd.[1]	100 Adelaide St. W., Toronto	Striker Twp.
Burma Shore Mines Ltd.[1]	392 Bay St., Toronto	Wilberforce
Burnt River Uranium Ltd.[1]	26 Queen St., Toronto	Wilberforce
Canada Radium Corp. Ltd.[1]	85 Richmond St. W., Toronto	Cardiff Twp.
Canadian All Metals Exploration Ltd.[1]	199 Bay St., Toronto	Haliburton
Can-Met Explorations[1]	360 Bay St., Toronto	Blind River
Caneonti Mines Ltd.[1]	200 Bay St., Toronto	Blind River
Cardiff Uranium Mines Ltd.[1]	26 Queen St. E., Toronto	Wilberforce
Conecho Mines Ltd.[1]	44 King St. W., Toronto	Quirke Lake
Consolidated Denison Mines Ltd.[1]	360 Bay St., Toronto	Quirke Lake
Consolidated Thor Mines Ltd.[1]	80 King St. W., Toronto	Cardiff Twp.
Consolidated Tungsten Mining Corp. of Can. Ltd.[1]	80 King St. W., Toronto	Cardiff Twp.
Dominion Uranium Corp.[1]	1551 Bishop St., Montreal, Quebec	Mateninda
Detta Minerals Ltd.[1]	145 Yonge St., Toronto	Blind River
Duvex Oils & Mines Ltd.[1]	100 Adelaide St. W., Toronto	Blind River
Dyno Mines Ltd.[1]	67 Yonge St., Toronto	Cardiff Twp.
Fab Metals Mines Ltd.[1]	25 Adelaide St. W., Toronto	Bancroft
Faraday Uranium Mines Ltd.[1]	100 Adelaide St. W., Toronto	Bancroft
Garland Mining & Development Co. Ltd.[1]	1121 Sherbrooke St. W., Montreal, Quebec	Anstruther
Geneva Lake Mines Ltd.[1]	357 Bay St., Toronto	Blind River
Greyhawk Uranium Mines Ltd.[1]	320 Bay St., Toronto	Faraday Twp.
Goldyke Mines Ltd.[1]	302 Bay St., Toronto	Bagot Twp.
Halo Uranium Mines Ltd.[1]	372 Bay St., Toronto	Haliburton
Jellicue Mines (1939) Ltd.[1]	532 Burrard St., Vancouver	Agnew Lake
Kemp Uranium Mines Ltd.[1]	507 Place d'Armes, Montreal, Quebec	Wilberforce
Lake Nordic Uranium Mines Ltd.[1]	111 Richmond St. W., Toronto	Elliot Lake
Lexindin Gold Mines Ltd.[1]	25 Adelaide St. W., Toronto	Blind River
Macfie Explorations Ltd.[1]	145 Yonge St., Toronto	Red Lake
Mayoma Mines Ltd.[1]	300 Bay St., Toronto	Sault Ste. Marie
Matimeuda Uranium Mines Ltd.[1]	88 Richmond St. W., Toronto	Blind River
McMarmac Red Lake[1]	405 Glencairn Ave., Toronto	Blind River
Milliken Lake Uranium Mines Ltd.[1]	4 Richmond St. E., Toronto	Blind River
Moon Lake Uranium Mines Ltd.[1]	44 King St. W., Toronto	Algoma
New Vinray Mines Ltd.[1]	100 Adelaide St. W., Toronto	Sault Ste. Marie
Nipirion Mines Ltd.[1]	302 Bay St., Toronto	Biddulph Twp.
Norgold Mines Ltd.[1]	100 Adelaide St. W., Toronto	Blind River
Nu-Age Uranium Mines Ltd.[1]	184 Bay St., Toronto	Cardiff Twp.
Nu-Cycle Uranium Mines Ltd.[1]	184 Bay St., Toronto	Glamorgan Twp.
Nu-World Uranium Mines Ltd.[1]	184 Bay St., Toronto	Glamorgan Twp.
Panel Consolidated Uranium Mines Ltd.[1]	170 Bay St., Toronto	Blind River
Pardee Amalgamated Mines Ltd.[1]	111 Richmond St., Toronto	Blind River
Pater Uranium Mines Ltd.[1]	44 King St. W., Toronto	Spragge Twp.
Peach Uranium & Metal Mining Ltd.[1]	44 King St. W., Toronto	Blind River
Pebble Uranium Mines Ltd.[1]	62 Richmond St. W., Toronto	Blind River
Penfield Uranium Mines Ltd.[1]	2281 Yonge St., Toronto	Blind River
Pickering Metal Mines Ltd.[1]	7 King St. W., Toronto	Mack Twp.
Plum Uranium & Metal Mining Ltd.[1]	44 King St. W., Toronto	Blind River
Power Uranium Co. Ltd.[1]	400 St. James St. W., Montreal, Quebec	Blind River
Pronto Uranium Mines Ltd.[1]	44 King St. W., Toronto	Long Twp.
Quebec Developers & Smelters Ltd.[1]	1551 Bishop St., Montreal, Quebec	Spragge Twp.
Randex Uranium Mines Inc.[1]	220 W. 42nd St., New York, U.S.A.	Blind River
Rare Earth Mining Corp. of Can.[1]	372 Bay St., Toronto	Tory Hill
Roche Long Lac Gold Mines Ltd.[1]	372 Bay St., Toronto	Quirke Lake
Sand River Gold Mining Co. Ltd.[1]	302 Bay St., Toronto	Blind River
Spanish American Mines Ltd.[1]	111 Richmond St. W., Toronto	Elliot Lake
Stancan Uranium Corp.[1]	80 Richmond St. W., Toronto	Blind River
Stanleigh Uranium Mining Corp. Ltd.[1]	372 Bay St., Toronto	Algoma
Talvey Metal Mines Ltd.[1]	604 Queen St. E., Sault Ste. Marie	Mack Twp.
Trio Uranium Mines Ltd.[1]	360 Bay St., Toronto	Parry Sound
Triton Mines & Metals Corp. Ltd.[1]	67 Yonge St., Toronto	Cardiff Twp.
Vite Uranium Mines Ltd.[1]	80 King St. W., Toronto	Blind River
Zenmac Metal Mines[1]	200 Bay St., Toronto	Blind River

Directory of Firms in the Miscellaneous Metal Mining Industry, 1955 – Concluded

Name of firm and product	Head office address	Location of mine or plant
Uranium – Concluded:		
Saskatchewan:		
Abaska Uranium Mining Co. Ltd.[1]	67 Yonge St., Toronto, Ontario	Athabaska
Ad Astra Ltd.[1]	214 Baltzen Bldg., Edmonton, Alberta	Athabaska
Ameranium Mines Ltd.[1]	100 Adelaide St. W., Toronto, Ontario	Athabaska
Baska Uranium Mines Ltd.[1]	2230 Queen St., Regina	Beaverlodge
Big Jackpot Mines Ltd.[1]	82 Government Rd., Kirkland Lake, Ontario	Crackingstone
Bluegrass Uranium Mines Ltd.[1]	8 Colborne St., Toronto, Ontario	Beaverlodge
Black Bay Uranium Ltd.[1]	25 Adelaide St. W., Toronto, Ontario	Uranium City
Brunston Mining Co. Ltd.[1]	320 Bay St., Toronto, Ontario	Beaverlodge
Consolidated Nickolson Mines Ltd.	532 Burrard St., Vancouver, British Columbia	Uranium City
Camdeck Mines Ltd.[1]	82 Government Rd., Kirkland Lake, Ontario	Fredette Lake
Cayzor Athabaska Mines Ltd.[1]	67 Yonge St., Toronto, Ontario	Uranium City
Chimo Gold Mines Ltd.[1]	25 Adelaide St. W., Toronto, Ontario	Uranium City
Clix Athabaska Mines Ltd.[1]	25 Adelaide St. W., Toronto, Ontario	Athabaska
Dee Explorations Ltd.[1]	104 Main St., Flin Flon, Manitoba	Athabaska
Destorada Mines Ltd.[1]	170 Bay St., Toronto, Ontario	Beaverlodge
Fidelity Uranium Mines Ltd.[1]	201 Wilkin Bldg., Edmonton, Alberta	Athabaska
Gaitwin Explorations Ltd.[1]	25 Adelaide St. W., Toronto, Ontario	Milliken Lake
Great Northern Uranium Exploration Co.[1]	540 Burrard St., Vancouver, British Columbia	Athabaska
Great West Uranium Mines Ltd.[1]	105 Ross Bldg., Saskatoon	Uranium City
Gulch Mines Ltd.[1]	217 Bay St., Toronto, Ontario	Uranium City
Gunnar Mines Ltd.	25 Adelaide St. W., Toronto, Ontario	Athabaska
Hawker Uranium Mines Ltd.[1]	10076 Jasper Ave., Edmonton, Alberta	Beaverlodge
Imperial Mines & Metals Ltd.[1]	11751-124th St., Edmonton, Alberta	Beaverlodge
Iso Uranium Mines Ltd.[1]	100 Adelaide St. W., Toronto, Ontario	Athabaska
Jahala Lake Uranium Mines Ltd.[1]	11 King St. W., Toronto, Ontario	Lac La Ronge
Joburke Gold Mines[1]	357 Bay St., Toronto, Ontario	Beaverlodge
Lorado Uranium Mines Ltd.[1]	357 Bay St., Toronto, Ontario	Uranium City
Lake Cinch Mines Ltd.[1]	25 Adelaide St. W., Toronto, Ontario	Uranium City
Lake Lingman Gold Mining Co. Ltd.[1]	320 Bay St., Toronto, Ontario	Beaverlodge
La Ronge Uranium Mines Ltd.[1]	11 King St. W., Toronto, Ontario	Nistowiack Lake
Magma Mines Ltd.[1]	467 Western Trust Bldg., Regina	Burbidge Lake
Nesbett Labine Uranium Mines Ltd.	25 Adelaide St. W., Toronto, Ontario	Uranium City
Nisto Mines Ltd.	532 Burrard St., Vancouver, British Columbia	Black Lake
Norart Uranium & Gold Mines Ltd.[1]	170 Bay St., Toronto, Ontario	Athabaska
North Country Uranium & Minerals Ltd.[1]	201 Wilkin Bldg., Edmonton, Alberta	Beaverlodge
Northwestern Uranium Ltd.[1]	504 Lancaster Bldg., Calgary, Alberta	Beaverlodge
Orbit Uranium Developments Ltd.[1]	357 Bay St., Toronto, Ontario	Beaverlodge
Orphan Uranium Mines Ltd.[1]	100 Adelaide St. W., Toronto, Ontario	Beaverlodge
Pitch Ore Uranium Mines Ltd.[1]	200 Bay St., Toronto, Ontario	Beaverlodge
Pitchvein Mines Ltd.[1]	82 Government Rd., Kirkland Lake, Ontario	Athabaska
Pluton Uranium Mines Ltd.[1]	11 King St. W., Toronto, Ontario	Beaverlodge
Randex Uranium Mines Ltd.[1]	220W. 42nd St., New York, U.S.A.	Athabaska
Reward Uranium Ltd.[1]	405 Royal Trust Bldg., Edmonton, Alberta	Beaverlodge
Rix Athabaska Uranium Mines Ltd.[1]	170 Bay St., Toronto, Ontario	Uranium City
Rock Hill Uranium Ltd.[1]	11751-124th St., Edmonton, Alberta	Athabaska
Scintilore Mines Ltd.[1]	80 Richmond St. W., Toronto, Ontario	Beaverlodge
St. Michael Uranium Mines Ltd.[1]	85 Richmond St. W., Toronto, Ontario	Athabaska
St. Mary's Uranium Mines Ltd.[1]	4 Richmond St. W., Toronto, Ontario	Uranium City
Sudbury Contact Mines Ltd.[1]	100 Adelaide St. W., Toronto, Ontario	Beaverlodge
Uranium Ridge Mines Ltd.[1]	25 Adelaide St. W., Toronto, Ontario	Uranium City
British Columbia:		
Quebec Metallurgical Industries Ltd.[1]	88 Metcalfe St., Ottawa, Ontario	Golden
Rexspar Uranium & Metals Mining Co. Ltd.[1]	170 Bay St., Toronto, Ontario	Birch Island
Northwest Territories:		
Consolidated Northland Mines Ltd.[1]	25 Adelaide St. W., Toronto, Ontario	Marian River
Eldorado Mining & Refining Ltd.	Box 379, Ottawa, Ontario	Port Radium, N.W.T.; Eldorado, Saskatchewan; Port Hope, Ontario
Femco Mines Ltd.[1]	184 Bay St., Toronto, Ontario	Yellowknife
Rayrock Mines Ltd.[1]	25 Adelaide St. W., Toronto, Ontario	Sherman Lake
Riverridge Mines Ltd.[1]	10920-88 Ave., Edmonton, Alberta	Marian River
Tarbell Mines Ltd.[1]	25 Adelaide St. W., Toronto, Ontario	Yellowknife
Traverse Longlac Mines Ltd.[1]	202 Imperial Bank Bldg., Edmonton, Alberta	Cormac
Zirconium:		
Dominion Magnesium Ltd.	67 Yonge St., Toronto, Ontario	Haley, Ontario

1. Active but not producing.
2. Holds dormant property.