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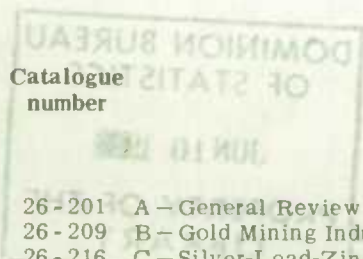
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IRON MINES

1964

This report includes statistics for industry 058—Iron Mines of the Standard Industrial Classification Manual (Catalogue No. 12-501). For statistical purposes, the industry Iron Mines is defined as including establishments primarily engaged in mining iron ore and in dressing and beneficiating such ores.

The producers of iron ore shipped 38,325,822 short tons valued at \$404,951,696 in 1964. Included in the total are direct shipping ore, lump ore, sinter, pellets, magnetic concentrates and by-products iron sinter.

Pyrite and pyrrhotite are roasted at Copper Cliff, Ontario by the International Nickel Co. of Canada, Ltd., at Falconbridge, Ontario by the Falconbridge Mines Ltd. and at Kimberley, British Columbia by the Consolidated Mining and Smelting Co. of Canada Ltd. Principal statistics details relating to these operations are included in the manufacturing industries; however, commodity data on Producers' Shipments of Iron Ore shown for all industries in Tables 10 and 11 include (since 1961) by-product iron sinter made by roasting or calcining this pyrite or pyrrhotite.

Detailed technical information on the mining and development of the iron ore industry may be found in the annual report of the Department of Energy, Mines and Technical Surveys, Ottawa, Mineral Information Bulletin M.R. 70.

Data presented in this report under the heading of Iron Mines (Tables 1-8) reflect the full implementation of the revised Standard Industrial Classification (S.I.C.) and the New Establishment Concept including an extension of the latter to cover total activities of mining establishments (see Explanatory Notes section of this report). Commodity statistics

reflecting total production from all sources, world figures on production, trade data, etc. are presented along the same general lines as in the earlier issues of this report.

The combination of improvements in internal procedures with the introduction of the final stage of the establishment concept in the annual Census of Mining produced changes which, for some industries, required major adjustments in industry statistical data—see Explanatory Notes. In the case of the industry under review in this report, the changes primarily affected the items relating to number of establishments, cost of materials and supplies, value of production and value added as evidenced in the comparative series of statistics presented in Tables 1 and 2. The reduction in the number of establishments indicated is the result of the exclusion of non-producers. These latter are no longer being included as establishments under the new definition. The higher cost of materials reflects the broadening of the coverage of materials used under the new definition—see Explanatory Notes. The changes in value of production are the result of a new procedure whereby iron ore is now valued (for purposes of principal statistics) f.o.b. mine site rather than f.o.b. shipping point. The decrease is, therefore, in the main, a reflection of the omission of transportation charges from mine site to shipping point. However, it should be noted that the effect on "value added" as a result of changes in treatment of transportation charges was minimal because as indicated in footnote¹ to Table 1 such charges were deducted in developing "value added" in prior years. The differences in "value added" shown in Tables 1 and 2 are due primarily to the higher costs of materials now being reported because of the broadening of the coverage of materials—see above.

SYMBOLS

The following standard symbols are used in Dominion Bureau of Statistics publications:

- .. figures not available.
- ... figures not appropriate or not applicable.
- nil or zero.
- amount too small to be expressed.
- p preliminary figures.
- * revised figures.
- x confidential to meet secrecy requirements of the Statistics Act.

TABLE 1. Principal Statistics, Iron Mines, 1957-63

Basis: Revised Standard Industrial Classification

Year	Establishments	Employees	Salaries and wages	Cost of fuel and electricity	Cost of materials and supplies	Value of production	Value added ¹
	number				dollars		
1957	60	7,770	36,288,939	6,218,370	10,312,348	167,221,425	102,701,537
1958	59	7,404	36,032,817	6,750,140	8,477,634	126,131,181	79,175,569
1959	59	7,776	41,450,834	7,708,322	10,043,867	192,666,101	125,208,070
1960	62	7,754	45,985,190	7,916,476	20,812,978	175,082,523	106,722,156
1961	49	8,049	47,107,661	8,331,530	21,643,625	186,332,963	124,588,726
1962	55	9,215	60,354,409	10,836,920	23,706,663	257,965,925	185,452,101
1963	48	9,993	65,646,688 ¹	14,150,608	32,620,631	305,372,105	215,043,674

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

See footnote Table 2.

TABLE 2. Principal Statistics, Iron Mines,¹ 1961-64

Basis: Revised Standard Industrial Classification and New Establishment Concept

Year	Estab- lish- ments	Mining activity							Total activity				
		Production and related workers			Cost of fuel and elec- tricity	Cost of materials and supplies	Value of produc- tion	Value added	Working owners and partners		Employees		Value added
		Number	Man- hours paid	Wages					Number	With- drawals	Number	Salaries and wages	
	No.		'000		\$'000					\$'000		\$'000	
1961	16	5,490	12,693	30,426	6,408	33,550	163,385	123,427	—	—	8,446	49,168	122,649
1962	20	6,113	13,161	36,140	8,639	51,037	230,790	171,114	—	—	9,181	56,573	172,499
1963	18	6,478	14,779	41,241	12,669	66,333	286,045	207,043	—	—	9,608	63,236	210,440
1964	16	6,696	15,453	44,840	16,694	71,405	328,178	240,079	—	—	9,544	66,540	243,133

¹ Refer to Explanatory Notes for description of concepts and definitions and explanation of differences in Tables 1 and 2. See also text page 3 and Note (b) Table 10.**TABLE 3. Employment and Payroll, Iron Mines, 1961-63**

Basis: Revised Standard Industrial Classification

Year	Employees										Salaries and wages				
	Production and related workers				Adminis- trative and office		Sales and distribution		Total		Production and related workers		Adminis- trative and office	Sales and distrib- ution	Total
	Mining		Other												
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Mining	Other			
number										\$'000					
1961	6,077	36	—	—	1,637	299	—	—	7,714	335	34,062	—	13,045	—	47,107
1962	6,263	24	—	—	2,479	449	—	—	8,742	473	42,233	—	18,121	—	60,354
1963	7,289	23	—	—	2,179	502	—	—	9,468	525	46,678	—	18,969	—	65,647

See footnote Table 2.

TABLE 4. Employment and Payroll, Iron Mines, 1961-64

Basis: Revised Standard Industrial Classification and New Establishment Concept

Year	Employees										Salaries and wages				
	Production and related workers				Adminis- trative and office		Sales and distribution		Total		Production and related workers		Adminis- trative and office	Sales and distrib- ution	Total
	Mining		Other												
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Mining	Other			
number										\$'000					
1961	5,463	27	638	2	1,914	402	—	—	8,015	431	30,426	3,744	14,998	—	49,168
1962	6,093	20	440	2	2,190	436	—	—	8,723	458	36,140	2,583	17,851	—	56,573
1963	6,458	20	616	2	2,044	468	—	—	9,118	490	41,241	4,063	17,932	—	63,236
1964	6,683	13	506	2	1,918	422	—	—	9,107	437	44,840	4,396	17,303	—	66,540

See footnote Table 2.

TABLE 5. Production and Related Workers, Iron Mines, 1963 and 1964
Basis: Revised Standard Industrial Classification and New Establishment Concept

Year and month	Mine			Mill	
	Surface		Underground	Male	Female
	Male	Female			
1963	number				
January	3,296	17	884	2,022	2
February	3,244	18	895	1,998	3
March	3,407	19	888	1,987	3
April	3,428	18	885	2,073	2
May	3,625	16	888	2,136	2
June	3,651	16	876	2,230	3
July	3,632	19	867	2,285	3
August	3,612	20	859	2,249	3
September	3,520	17	809	2,216	2
October	3,422	14	824	2,224	2
November	3,338	17	869	2,167	2
December	3,195	17	858	2,129	3
Averages	3,448	17	867	2,143	3
1964					
January	3,406	15	852	2,203	—
February	3,469	14	861	2,229	—
March	3,507	14	878	2,193	—
April	3,608	13	879	2,259	—
May	3,727	15	881	2,331	—
June	3,689	13	889	2,310	—
July	3,686	15	870	2,275	—
August	3,684	13	863	2,258	—
September	3,562	13	851	2,270	—
October	3,526	12	853	2,287	—
November	3,423	10	869	2,326	—
December	3,345	14	893	2,180	—
Averages	3,553	13	870	2,260	—

TABLE 6. Purchased Fuel and Electricity Used, Iron Mines, 1963-64
Basis: Revised Standard Industrial Classification and New Establishment Concept

Description	1963		1964	
	Quantity	Cost	Quantity	Cost
		\$'000		\$'000
Bituminous coal:				
(a) From Canadian mines	ton 344	6	554	10
(b) Imported	" 8	--	427	5
Sub-bituminous coal (from Alberta mines only)	" —	—	—	—
Anthracite coal	" 1	--	1	--
Lignite coal	" —	—	—	—
Coke	" 3,953	46	3,934	43
Gasoline (including gasoline used in cars and trucks)... Imp. gal.	1,336,065	495	1,304,281	480
Fuel oil including kerosene or coal oil	" 40,234,627	5,554	62,157,551	7,916
Wood	" 459	10	525	13
Gas:				
(a) Liquefied petroleum gases	Imp. gal. 74,687	21	82,025	21
(b) Other manufactured gas	M cu. ft. —	—	—	—
(c) Natural gas	" —	—	—	—
Other fuel	" ...	—	...	—
Electricity purchased	kwh. 933,365,340	6,537	1,301,092,536	8,206
Steam purchased	" ...	—	...	—
Total fuel and electricity used	12,669	...	16,694
Electricity generated:				
(a) For own use	kwh. 29,358,310	...	43,890,544	...
(b) For sale	" 75,054,990	...	65,029,450	...

TABLE 7. Materials and Supplies, Iron Mines,¹ 1963 and 1964
 Basis: Revised Standard Industrial Classification and New Establishment Concept

Description	Cost	
	1963	1964
	\$'000	
Ore or other semi-processed materials purchased and used in mine/mill operations	199	343
Containers, shipping materials and supplies used	—	5
Operating, maintenance and repair supplies used (excluding fuel)	57,863	70,578
Amount paid out to others for work done on materials owned by establishments:		
To smelters and/or refineries	115	98
To others (mining, milling, etc.)	8,156	380
Totals	66,333	71,405

¹ Refer to Explanatory Notes for explanation of differences in Tables 7 and 8 with data published in earlier years. See also last page 2.

TABLE 8. Value of Production, 1963 and 1964
 Basis: Revised Standard Industrial Classification and New Establishment Concept

Description	Value	
	1963	1964
	\$'000	
Value of production	278,381	328,057
Amount received in payment for work done on materials and products owned by others	7,664	121
Total value of production and work done	286,045	328,178

See footnotes Table 7 and Note (b) Table 10.

TABLE 9. Ore Mined and Milled, Iron Mines, 1961-64

	1961	1962	1963	1964
	tons (2,000 pounds)			
Ore mined:				
Underground	4,524,549	3,700,330	3,850,866	5,081,360
Open pit	28,188,406	46,175,981	56,220,326	67,713,986
Crude ore beneficiated	16,342,098	33,056,360	43,402,801	53,299,632
Concentrates produced:				
Not agglomerated	8,651,782	12,682,435	14,618,438	15,802,662
Agglomerated	3,165,193	2,993,589	5,633,391	9,855,971

TABLE 10. Producers' Shipments of Iron Ore,¹ by Provinces, 1955-64

Year	Newfoundland		Quebec	
	Quantity	Value	Quantity	Value
	tons	\$	tons	\$
1955	7,206,883	45,701,801	4,103,173	27,164,396
1956	8,463,572	55,620,755	7,956,549	58,373,270
1957	8,174,779	57,898,102	8,872,948	65,805,057
1958	5,390,775	38,226,828	6,060,325	46,859,490
1959	6,105,819	42,974,837	11,515,169	92,497,012
1960	7,611,365	54,673,717	7,457,971	61,752,485
1961	7,611,340	59,889,125	5,639,931	53,627,608
1962	7,986,910	67,753,153	11,163,982	112,444,643
1963	9,683,004	99,601,987	11,650,787	122,800,862
1964	12,763,575	137,038,680	15,512,916	161,880,175

See footnote at end of table.

TABLE 10. Producers' Shipments of Iron Ore,¹ by Provinces, 1955-64 - Concluded

	Ontario		British Columbia		Canada	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$
1955	4,362,191	34,340,897	610,930	3,228,756	16,283,177	110,435,850
1956	5,558,203	44,177,246	369,954	2,190,847	22,348,278	160,362,118
1957	4,867,105	41,317,629	357,342	2,200,637	22,272,174	167,221,425
1958	3,644,952	36,851,421	630,271	4,193,442	15,726,323	126,131,181
1959	6,018,089	50,830,404	849,248	6,363,848	24,488,325	192,666,101
1960	5,325,197	48,399,442	1,156,297	10,256,879	21,550,830	175,082,523
1961 ²	5,772,664	62,350,773	1,335,068	12,082,541	20,359,003	187,950,047
1962 ²	6,414,936	64,479,510	1,793,848	18,326,911	27,359,676	263,004,217
1963 ²	6,749,617	70,033,690	2,060,241	20,746,424	30,143,649	313,182,963
1964 ²	8,046,769	85,613,354	2,002,562	20,419,487	38,325,822	404,951,696

¹ Exclusive of titanium-bearing ores.² Includes by-products iron sinter: 1961 amounting to 310,335 tons valued at \$3,780,126; 1962 was 350,299 tons at \$5,038,292; 1963 was 638,235 tons at \$8,657,283; 1964 was 974,788 tons at \$12,949,858.

Note: (a) The above and subsequent tables contain data on commodities produced by operators which are classified to other industries. As an example: by-products iron sinter or calcine is produced by firms classified to the Smelting and Refining Industry.

(b) In addition, it should be noted that the basis of valuation used in above table is f.o.b. shipping point rather than mine site and, therefore, reflects inclusion of transportation and handling charges; accordingly, values shown in above table will be found to be higher than the values shown in Table 8.

TABLE 11. Producers' Shipments of Iron Ore, by Months, 1962-64

Month	1962	1963	1964	Month	1962	1963	1964
	tons (2,000 pounds)				tons (2,000 pounds)		
January	461,526	756,518	1,032,765	August	3,508,577	3,649,078	4,411,503
February	522,718	713,735	890,772	September	3,852,341	3,989,474	4,486,488
March	500,054	825,270	1,091,934	October	3,508,087	3,544,102	4,084,075
April	1,098,006	1,235,253	2,376,972	November	1,265,232	2,650,779	3,834,402
May	3,548,111	3,506,599	4,203,165	December	926,930	1,637,241	2,400,666
June	4,234,517	3,800,374	5,040,349				
July	3,933,577	3,835,226	4,472,707	Year	27,359,676 ¹	30,143,649 ¹	38,325,822 ¹

¹ Includes by-products iron sinter which amounted to 350,299 tons in 1962; 638,235 tons in 1963 and 974,788 tons in 1964.TABLE 12. Producers' Shipments¹ of By-products Iron Sinter, 1960-64

By-product	1960	1961	1962	1963	1964
	short tons (2,000 pounds)				
Sinter, pellets, from roasted pyrite and pyrrhotite	286,523	311,674	364,815	638,235	974,788

¹ Data are not included in iron ore shipped directly from iron mines, except in 1961, when 310,335 tons were included; in 1962 when 350,299 tons were included; in 1963 when 638,235 tons were included.

TABLE 13. Imports of Iron Ore, 1960-64

Country from which Imported	1960	1961	1962	1963	1964
	short tons (2,000 pounds)				
United Kingdom	11	—	—	—	—
West Germany	—	—	—	9	—
Brazil	175,729	193,439	174,127	386,322	416,924
Chile	—	—	—	—	26,712
United States	4,863,360	4,434,295	4,983,270	5,575,095	5,417,810
Venezuela	17,248	—	—	—	—
Italy	—	336	—	—	—
Netherlands	—	84	—	—	—
Nigeria	—	—	—	3,373	—
Totals	5,056,348	4,628,154	5,157,397	5,964,799	5,861,446

Source: Trade of Canada, "Imports by Commodities", Catalogue No. 64-007.

TABLE 14. Exports of Iron Ore, (crude, concentrated, agglomerated) 1964

Country to which exported	Direct shipping grade	Concentrated	Agglomerated	Other grades n.e.s.
short tons (2,000 pounds)				
United Kingdom	255,341	2,213,648	1,072,414	—
Germany, West	65,952	221,989	67,748	—
Japan	46,742	1,831,870	—	—
Italy	—	34,608	—	—
Netherlands	—	125,735	85,447	—
Bahamas	—	5,600	—	—
United States	9,305,108	12,034,107	5,838,446	590,793
Belgium	66,192	239,125	—	—
France	—	28,000	—	—
Trinidad	—	—	—	1,680
Totals	9,739,333	16,734,682	7,064,053	592,473

Source: Trade of Canada, "Exports by Commodities", Catalogue No. 82-004.

TABLE 15. Iron Blast Furnaces Charges,* 1963 and 1964

	1963	1964
tons (2,000 pounds)		
Crude iron ore:		
From Canadian mines	710,024	548,954
From foreign mines	1,776,952	1,290,956
Pyrite cinder	2	2
Iron ore (sintered, pelletized, etc.):		
From Canadian mines	2,073,137	2,571,241
From foreign mines	3,050,640	3,637,373
From own processing	1,747,067	1,816,699
Mill cinder, roll scale, slag and flue dust (not sintered, pelletized, etc.)	184,917	243,942
Scrap iron and steel	78,031	81,646
Limestone	761,532	744,344
Dolomite	428,044	480,446
Coals	3,579,366	3,738,121

* Does not include charges into furnaces used in the smelting of titanium ores.

† Included with mill cinder, roll scale, slag and flue dust (not sintered, pelletized, etc.).

TABLE 16. World Production of Iron Ore, by Countries

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

Country	1960	1961	1962	1963	1964
thousands of long tons					
North America:					
Canada	19,242	18,178	24,428	26,914	34,219
Cuba ¹	3	2	1	1	1
Dominican Republic	121	—	—	—	—
Guatemala ¹	4	5	5	6	7
Mexico (60% Fe equivalent)	855	1,127	1,790	2,291	2,284
United States ¹	88,784	71,329	71,829	73,599	84,836
Totals	109,009	90,641	98,053	102,811	121,347
South America:					
Argentina	133	137	121	98	94
Brazil	9,197	10,059	10,567	11,042	16,694
Chile	5,946	6,879	7,964	8,373	9,697
Colombia	645	665	669	684	699
Peru	6,880	8,599	5,855	6,470	6,501
Uruguay	—	—	—	1	2
Venezuela	19,182	14,335	13,057	11,562	15,403
Totals	41,983	40,674	38,233	38,230	49,089

See footnotes at end of table.

TABLE 16. World Production of Iron Ore, by Countries — Concluded

Country	1960	1961	1962	1963	1964
thousands of long tons					
Europe:					
Albania	251	352	418	255	345 ¹
Austria	3,486	3,635	3,692	3,675	3,507
Belgium	157	113	80	94	60
Bulgaria	405	411	625	645	705
Czechoslovakia	3,071	3,242	3,422	3,357	2,801
Finland ³	269	276	299	360	466
France	65,907	65,554	65,254	56,978	59,976
Germany:					
East	1,616	1,617	1,616	1,635	1,608
West	18,571	18,568	16,380	12,694	11,340
Greece	292	287	209	35	59
Hungary	508	595	671	721	763
Italy	1,242	1,216	1,133	1,008	900
Luxembourg	6,867	7,340	6,404	6,880	6,575
Norway	1,665	1,647	1,919	1,935	2,019
Poland	2,148	2,348	2,398	2,568	2,638
Portugal	297	245	258	259	212
Rumania	1,437	1,710	1,711	2,250	1,901
Spain	5,549	5,967	5,670	5,111	5,026
Sweden	21,348	23,220	22,170	23,264	26,239
Switzerland	123	85 ¹	102 ¹	94	89
U.S.S.R. ^{4,5}	104,186	115,776	126,088	135,331	143,553
United Kingdom	17,088	16,518	15,277	14,912	16,326
Yugoslavia	2,165	2,150	2,155	2,261	2,271
Totals^{1,4}	258,648	272,872	277,951	276,322	289,469
Africa:					
Algeria	3,384	2,822	2,209	1,945	2,696
Angola	649	799	740	628	885
Guinea, Republic of	764	533	689	652	755
Liberia	3,003	3,200	3,550	6,453 ⁶	10,291
Mauritania	—	295	984	1,652	5,000
Morocco	1,552	1,439	1,131	1,019	874
Rhodesia, Southern	156	382	609	645	811
Sierra Leone	1,447	1,668	1,843	1,882	1,962
South Africa, Republic of	3,023	3,898	4,263	4,390	4,764
South-West Africa	—	—	—	15	—
Sudan	3	5	20	—	7
Swaziland	—	—	—	—	—
Tunisia	1,017	836	749	851	944
United Arab Republic (Egypt)	237	415	454	481	440
Totals	15,235	16,292	17,061	20,613	29,460
Asia:					
Burma	16	16 ¹	9	4	—
China, mainland ^{1,8}	54,100	34,400	29,500	34,400	36,400
Goa	5,764	6,381	5,354	4,921	5,571
Hong Kong	115	117	111	112	114
India	10,514	12,076	13,151	14,758	15,069
Iran ⁹	57	41	10	21	—
Japan ¹⁰	2,809	2,826	2,546	2,387	2,517
Korea, North	3,059	3,494	3,287	3,799	4,724
Korea, Republic of	386	481	464	493	674
Lebanon	8	—	—	—	—
Malaysia	5,641	6,734	6,508	7,264	6,465
Pakistan ¹¹	6	4	—	7	5
Philippines	1,121	1,153	1,365	1,363	1,345
Taiwan ¹²	8	13	6	5	7
Thailand (Siam)	11	55	44	16	188
Turkey	778	746	800	735	961
Totals^{1,4}	84,400	68,500	63,200	70,300	74,000
Oceania:					
Australia	4,355	5,342	4,843	5,545	5,669
Fiji	24	10	6	1	—
New Caledonia	272	273	298	294	302
Totals	4,651	5,625	5,147	5,810	5,971
World totals (estimate)¹	513,926	494,604	499,645	514,086	569,336

¹ Estimate.² Includes by-product ore.³ Iron concentrates and pellets.⁴ U.S.S.R. in Asia included with U.S.S.R. in Europe.⁵ Data represents iron concentrates of approximately 60 per cent iron.⁶ Exports.⁷ Less than 1/2 unit.⁸ Roughly equivalent of 50 per cent iron.⁹ Year ending March 20 of year following that stated.¹⁰ Includes iron sand production as follows: 1960, 1,539,346 tons; 1961, 1,685,137 tons; 1962, 1,419,744 tons; 1963, 1,247,822 tons; 1964, 1,402,814 tons.¹¹ Obtained principally during exploration activities.¹² Principally magnetite sands with limonite.

TABLE 17. Drilling Completed on Iron Ore Deposits of Producing Mines,¹ 1964

	Footage drilled
Diamond drilling for exploration and testing:	
By mining companies with their own personnel and equipment	—
By diamond drilling contractors	64,767
Other diamond drilling:	
Elast hole diamond drilling:	
By mining companies with their own personnel and equipment	—
By diamond drilling contractors	24,092
Drilling by percussion or other machines ²	6,106,049

¹ Data are not comparable to those published in earlier years when non-producing mines were included.² Not complete as records are unavailable at certain mines.TABLE 18. Specified Taxes Paid by Companies Engaged in Iron Mines Operations,¹ 1964

	Dollars
Depletion income tax, including tax on non-operating revenue	1,277,759
Provincial taxes	3,480,144
Municipal taxes	1,371,148
Totals	6,129,051

¹ (a) Data are not comparable to those published in earlier years when non-producing mines were included.

(b) Includes related corporate activities associated with operations of iron mines.

TABLE 19. Miscellaneous Expenditures made by Companies Engaged in Iron Mines Operations,¹ 1964

	Dollars
(a) Workmen's compensation	737,318
(b) Silicosis assessment	93,826
(c) Unemployment insurance	371,225
(d) Aggregate cost of structures, roads, machinery, equipment, etc., built by or purchased from outside contractors or suppliers and chargeable to Fixed Assets Account	34,080,854
(e) Book value of fixed assets (new structures, roads, machinery, equipment, etc., including major repairs and alterations) produced by own employees and chargeable to Fixed Assets Account	2,205,668
(f) Other capital expenditures not reported in (d) and (e)	476,797
(g) Cost of materials and supplies used in the production of machinery and equipment and in the construction of roads and new structures (including major repairs and alterations by own employees and chargeable to Fixed Assets Account)	2,219,552
(h) Cost of office supplies used during the year, not chargeable to Fixed Assets Account. Excludes cost of stamps and meter expenses	640,691

¹ Includes related corporate activities associated with Canadian operations of iron mines not allocable separately elsewhere.

List of Establishments classified to this Industry, 1964

(Does not include establishments classified to other industries which recover iron ore as a secondary activity)

Name of firm	Head office and address	Location of mine or plant
Newfoundland:		
Desco Industries Ltd. (Wabana Mines)	Box 249, Montreal P.Q.	Bell Island, Newfoundland
Iron Ore Company of Canada	Sept-Îles, Québec	Labrador
Iron Ore Company of Canada	Sept-Îles, Québec	Carol Lake
Quebec:		
Hilton Mines, The	2000 Union Commerce Bldg., Cleveland 14, Ohio, U.S.A.	Bristol Twp.
Iron Ore Company of Canada	Sept-Îles	Schefferville
Quebec Cartier Mining Co.	Port Cartier	Saguenay
Ontario:		
Algoma Ore Properties Ltd.	Cornwall Building, Sault Ste. Marie	Algoma District
Coland Ore Co. Ltd.	Box 1300, Atikotán	Rainy River
Lawphos Ore Ltd.	Capreol	Moose Mountain
Marmorator Mining Co. Ltd.	Marmora	Marmora
Oglebay Norton Company	1200 Hanna Bldg., Cleveland, Ohio, U.S.A.	Freeborn Twp.
Steep Rock Iron Mines Ltd.	Steep Rock Lake	Rainy River District
British Columbia:		
Brynmor Mines Limited	44 King St. W., Toronto 1, Ontario	Kennedy Lake
Jadway Iron Ore Ltd.	1111 West Georgia St., Vancouver	Moresby Island
Texada Mines Ltd.	Box 10, Gillies Bay	Texada Island
Zaballos Iron Mines Ltd.	1112 W. Pender St., Vancouver	Zaballos

EXPLANATORY NOTES

(Including Concepts and Definitions)

INTRODUCTION

The Census of Mines, Quarries and Oil Wells is an annual mail survey covering Canada's Mineral Industries based on the Standard Classification of Industries. While principal statistics are collected and compiled for all mineral industries not all can be published separately by province because of the confidential nature of the data in certain provinces.

The reporting unit for the Census is designated as the establishment (see definition of Establishment in following section) and a return is requested from every establishment classified to a mineral industry. When an establishment is operated for only part of a year a report is required covering the period of operation.

There are four different questionnaires used in this Census: (a) short form (introduced in 1965) (b) long form (c) head office questionnaire and (d) commodity questionnaire. The short and long forms are used to obtain principal statistics and commodities shipped from establishments classified to mineral industries and differ only in the amount of detail requested.

The head office questionnaire is generally used for company head offices and/or auxiliary units separately located from the mineral establishment(s), (see following notes on Head offices and auxiliary units). The Commodity questionnaire is used to survey certain establishments to collect information on the quantity and value of goods of own production shipped or used by such establishments in order to achieve full coverage of domestically produced commodities. (See the following note under Value of production).

General

This report is one in a series of 18 publications which relate to the operations of industries comprising Major Groups 1,3, and 4 of Division 4, Mines (including Milling) Quarries and Oil Wells of the revised Standard Industrial Classification (S.I.C.). These groups are respectively Metal Mines, Non-metal Mines and Quarries and Sand Pits. Industries comprising Major Group 2 (Mineral Fuels) are covered in a separate series of reports. The industries included in Major Group 5, Services Incidental to Mining are not covered by separate reports. However, certain relevant statistics are published in various publications, for example, "Contract Drilling for the Mining Industry" (Catalogue No. 26-207), "Construction in Canada" (Catalogue No. 64-201) and a special report "Private and Public Investment in Canada" (available on request from the Bureau or the Queen's Printer). The Bureau has also developed a new survey "Annual Survey of Mining and Exploration Companies". This survey is being introduced for the 1967 reporting period and will attempt to bring together details on exploration, development and capital and repair expenditures for the mining universe (excluding oil and gas).

The publication of this series of 18 reports constitutes the final phase of the implementation of the revised Standard Classification for these three Major Groups (see above). Because of its size and complexity, this project has to be carried out in several stages and over a period of years. These stages were as follows: (a) reclassification of establishments according to the revised S.I.C. (b) implementation of a new establishment definition (c) an extension of the establishment definition to cover the non-mining activities of mining establishments. The first stage was completed with the 1960 Census of Mines, etc. and the results were published in the 1960 and 1961 reports on the basis of the revised Standard Industrial Classification. This part of the project was confined entirely to a re-coding of existing reporting units. Under the revised Standard Industrial Classification reporting establishments are classified or allotted to specific industries in the classification system on the basis of the value of principal products made or shipped. Full details concerning the revised classification system are contained in the "Standard Industrial Classification Manual", Catalogue No. 12-501, which is available from either the Queen's Printer or the Dominion Bureau of Statistics.

The second stage in the project consisted of the implementation of the new definition of the reporting unit i.e. "establishment" as it applied to mining activities of mining establishments (see following note on Establishment). Results of the 1962 Census of Mining reflected this change in concept and, in order to provide comparability of data for previous years, the 1962 reports contained principal statistics on the basis of the new establishment definition for years back to 1957. This naturally included the projection of stage one.

The third stage in the project which was the extension of the definition of the establishment to cover total activities of mining establishment, is reflected in the 1964 data presented in the present report. By definition "total activity" relates to all operational data and excludes such non-operational items as rent, interest and dividends. Statistics on man-hours included in the earlier publications for the mining industry will continue to be included as part of the regular series but will be confined to production and related workers as in the reports for the Census of Manufactures. Adjustments and revisions made in the statistics for mining activities covering the period 1961-63 and carried in the mining series of publications for this period were further revised in the course of the final stage of the programme to bring them in line with reporting procedures followed in the 1964 Census of Mining which reflect the final application of the new concept. The 1961-63 statistics on mining statistics on the new basis are thus not comparable with those published in earlier issues in this series. However, the 1961-63 statistics are shown in this publication in both their previously published and revised forms in order to provide a link with the immediate past.

Reference has already been made to changes implemented and in the course of implementation in the mining industries in reports published in this series prior to the 1964 issues; however a more complete account of the changes and additions and brief descriptions of the principal industry statistics are given in the following sections of those notes. This latter includes as well a special section dealing specifically with the impact of a new concept in the treatment of the Smelting and Refining industry on the metal mines industries. A description of conceptual and definitional changes appropriate to the statistics for Major Group 4, Mineral Fuels will be included in the relevant industry reports for this group.

Metal Mines

The effect of the application of a special concept to the reporting procedures followed by plants carrying on integrated mining/smelting/refining operations will be evident in the comparison of the 1961-64 data particularly for the items Materials and supplies and Value of production shown in the publications on Metal Mines and the data published in reports prior to 1964. The industries in which the application of this concept had a major effect are those included in S.I.C. Major Group 1 - Metal Mines of the Annual Census of Mining (Mines (including Milling) Quarries and Oil Wells) but more particularly the following:

Copper-Gold-Silver Mines
Nickel-Copper Mines
Silver-Lead-Zinc Mines

These industries which are dominated by a sector of vertically integrated companies involved in mining and manufacturing (smelting and refining) operations have historically created significant distortions in the statistics for these industries. These were caused, for the most part, as a result of applying a value to the ores, concentrates, etc. which were part of the materials (inputs) of the Smelting and Refining industry. The method of valuation used was based on the recoverable metal content of these materials, that is, ores, concentrates, etc. A similar procedure was followed in valuing the output portion of these mines. Since the major output of the mines served as an input to the Smelting and

Refining industry and in turn became a part of the output of the Smelting and Refining industry there was, in effect, a duplication of values for recoverable metal content in the mining and manufacturing sector (smelting and refining). The procedure followed also tended to understate the total output value of the mines sector because the recoverable metal content was valued at a lower level in the processing operations than is, as ores, concentrates, etc. before smelting and/or refining.

Prior to the full implementation of the establishment concept to include total activities, the "Materials and supplies" section included primarily a limited number of consumable materials such as explosives, drill steel, lubricants, etc. Many kinds of supplies, for example, maintenance and repair supplies were not reported. The extension of the Materials and supplies section in accordance with the total activities concept to provide for a more complete coverage of materials and supplies accounts for a major part of the increase in the total cost of Materials and supplies used. In the case of the vertically integrated companies the procedure followed omitted treatment charges such as milling, smelting refining, etc. from the input side of the mines sector involving these companies as well as from the output side of the Smelting and Refining industry. As a result the cost of materials (inputs) reported, particularly for the industries in the mines sector mentioned above was considerably understated.

As a result of the foregoing it was necessary to find some statistical device which would eliminate the above practices and permit the derivation of more meaningful principal statistics - for both the metal mines and for the smelting and refining industry.

While it has been suggested that smelting and refining should be treated as part of the metal mines, and that the statistics should be compiled on this basis, this would be difficult to justify from the statistical viewpoint. Smelting and refining by the nature of its operations constitutes a

manufacturing activity and is considered such, not only in the Canadian and International classification systems but also in the systems of most foreign countries. To include it as part of the mining universe would not only make international comparisons virtually impossible but would affect the importance of Canada's manufacturing industries even more drastically than the changes which resulted from the approach adopted.

After a thorough study of these problems and consultations with the firms involved, it was found that the only satisfactory solution was to continue to consider smelting and refining as a manufacturing industry and to treat such operations of vertically integrated companies as "custom" operations regardless of whether or not the smelting and refining plants (establishments) of such companies were concerned solely with the smelting and refining of ore, concentrates, etc. of their own company. This procedure eliminated the need to arbitrarily value the ores, concentrates, etc. transferred to the smelter and to value the output of the smelter and refinery in terms of commodities produced. Although, for the purpose of commodity statistics, these are still valued on the basis of recoverable metal content, the revenue from integrated operations accrues to the mines concerned and is not duplicated, as in the past, in both the mining and the smelting and refining industries. Thus the revenue from smelting and refining in such integrated operations now consists primarily of treatment costs of own ores, etc. plus any revenue from toll charges of non-company ores, by-products, etc.

The effects of allocating the final revenues of the vertically integrated companies included in this industry to the metal mining industries and the broadening of coverage for materials used, as well as any changes resulting from the implementation of the revised Standard Industrial Classification and the New Establishment Concept, are reflected in the tables of principal statistics for the years 1961 to 1964. Additionally, these tables reflect the inclusion of the non-mining activities, i.e. the total activity concept.

CONCEPTS AND DEFINITIONS

Establishment

A mining establishment is typically a mine, mine/mill (concentrator), quarry, pit, bog, or plant principally engaged in commercial production activities. In many cases a mining company consists of a single establishment but it is not uncommon for a company to consist of a number of establishments some of which may be in mining i.e. mine/mill and others in manufacturing i.e. smelter, cement plant, etc. In addition a number of locations may be involved. Such firms are requested to submit a separate Census of Mining report for each mineral establishment which can meet the reporting requirements embodied in the following definition of the "establishment".

"The smallest unit which is a separate operating entity capable of reporting the following principal statistics:

- Materials and supplies used
- Goods purchased for resale as such
- Fuel and power consumed
- Number of employees and salaries and wages
- Man-hours worked and paid
- Inventories
- Shipments or sales."

Each establishment is required to report on all the activities carried out within its accounting boundaries (except non-operating revenues such as rent, interest and dividends) and data on the different activities (mining etc., trading in goods not of own manufacture, construction by own labour force, revenue from services, etc.) are requested to be reported separately. It should be noted that the statistics for separate activities are not completed consistent since some respondents cannot distinguish, in their records, materials, shipments and inventories relating solely to their own mining activities. For example, inventory of commodities purchased

for re-sale may not be distinguishable from inventory of own mineral commodities. Complete consistency, therefore, can be obtained only at the "all operations" (total activity) level and for studies or statistical measures requiring accurate co-ordinated data, the "total activity" statistics should be used.

The number of establishments represents the number of operating units that are principally engaged in the activities of the mineral industries to which they have been classified. These units do not necessarily represent the total number engaged in the production of a commodity mainly produced in a certain industry. Some commodities are produced as secondary products in other mineral and non-mineral industries. It should be noted that head offices and auxiliary units which are surveyed separately are not included in the establishment count, (see following notes on Head offices and auxiliary units).

Head Offices and Auxiliary Units

Head offices and auxiliary units of companies classified to the mineral industries such as sales offices, administrative offices, warehouses, laboratories, etc. are now surveyed as part of the Census of Mining.

These head offices and auxiliary units are either included in an establishment report or are surveyed by means of the head office questionnaire. The former is the most common case where a single establishment firm has its executive personnel, sales office, etc. located at the site of the mine (establishment). The special head office questionnaire is generally used where a firm, regardless of the number of establishments, has separately located offices or auxiliary units. Such offices or units do not constitute establishments within the Census of Mining as they do not normally generate operational revenues, but give rise only to cost of operations

(mainly salaries and wages) which are automatically included in the value of shipments or sales. Although not considered as establishments, and hence, not included in the "establishment" count for an industry, the operational costs are reflected in either the "Industry" statistics (3 or 4 digit level) or the "Major group" statistics (2 digit level) according to the following rules:

- (a) In the case of single establishment firms, statistics of offices and units located in a different municipality to the mining establishment are classified to the same industry (3 or 4 digit) as the mining establishment;
- (b) In the case of multi-establishment firms, the statistics for such offices and units are coded to the same industry as the establishments of the firm, when all establishments are in the same industry (3 or 4 digits). When establishments of such firms are coded (1) to different industries within a major group, (2) to industries in different major groups or (3) to industries in different divisions of the Standard Industrial Classification, then the statistics are included in the major group totals (2 digit level) in which the major part of the company's operations are classified. Although this may result in some distortion of major group statistics in the case of (2) and (3) the statistics at the industry (3 or 4 digit) level in all cases will be left free of these company-wide data.

Employees

(a) Production and related workers — Mining activities

In addition to those engaged directly in mining production activities, they include those employed in storing, inspecting handling, packing, warehousing, etc. They also include employees engaged in maintenance, repair, janitorial and watchman services and line supervisors (working foremen) engaged in similar work to that of the employees they supervise. For those establishments reporting on the "long" form, production and related workers engaged in mining activity are reported as those receiving pay during the last pay period of each month, an average for the year being obtained by summing the monthly figures and dividing by 12. This procedure is followed even though the establishment did not operate in all months in order to arrive at equivalent annual full-time employment. The numbers are somewhat affected by turnover, in that employment is overstated when an employee changes employment during a pay period. The man-hours of production and related workers in mining activity represent total man-hours paid (total hours at work during the calendar year plus hours not worked but nevertheless paid for, such as paid vacations, sick leave, statutory holidays, etc.). In reporting overtime hours, respondents are requested to report only hours actually at work. It should be noted that the division of hours paid into production and related workers payrolls results in average hourly earnings and does not represent hourly wage rates which are collected and published by the Department of Labour and which are based on selected occupations.

(b) Production and related workers — Non-mining activities

Such employees include those on mining establishments' payrolls engaged in activities such as construction undertaken for the use of these establishments and any other production workers who are not engaged directly in the production of ore and/or concentrates.

(c) Administrative and office employees

This category includes all executive and supervisory officials such as presidents, vice-presidents, comptrollers, secretaries, treasurers, etc., together with managers, professional, technical and research employees, superintendents and plant supervisors above the line supervisor or working foreman level, and clerical staff. Also included are employees in activities such as advertising, credit collections, purchasing, personnel, legal, medical, etc. It should be noted that prior to 1961 this category also included working owners and partners. Also included in this category are employees located at head offices or auxiliary units separately located from the establishment; in accordance to the rules outlined under "Head offices and auxiliary units" above.

(d) Sales and distribution workers

This category includes office personnel whose salaries are charged to selling expense, e.g. travelling salesmen. It may also include some sales employees who are reported as part of a mining establishment but are not working at the establishment. These are generally broken down by location in cases where more than 15 employees are involved in any one location. The figures exclude persons working on a commission basis who are not considered regular employees of the establishment.

(e) Total employees

This total comprises the foregoing categories including employees located at separately located head offices and auxiliary units. The numbers of employees included under categories (b), (c) and (d) are reported in the form of annual averages and represent as closely as possible full time employment; adjustments are made when reported figures indicate the existence of part-time or seasonal employment.

Working Owners or Partners

These are not now included in the statistics of employees and salaries and wages. There is some duplication in numbers when a person owns more than one establishment and is reported as a working owner on each Census return. Withdrawals of working owners are defined as amounts withdrawn by owners or partners for normal living expenses excluding withdrawals for payment of income tax.

Salaries and Wages

Salaries and wages refer to gross earnings of employees before deductions for income tax and employees contributions to social services such as sickness, accident and unemployment insurance, pensions, etc. They include all salaries, wages, bonuses, profits shared with employees, the value of room and board where provided, commissions (paid to regular employees only) as well as any other allowance forming part of the worker's earnings. Payments for overtime are included.

Fuel and Electricity

Figures for fuel refer to amounts actually used (including fuel used in cars, trucks, locomotives, etc.), not to purchases unless the quantities are substantially the same. Any fuel and electricity produced by establishments for internal consumption are not included in the total cost. Values represent laid down cost at the establishment including freight, duty, etc. Although fuel and electricity used is considered part of mining activity it should be noted that it also includes relatively small amounts used in non-mining activities since these cannot be reported separately.

Materials and Supplies

(a) Mining activities

Figures represent quantities and laid down cost values, at the establishment, of materials, supplies and purchased components owned and used during the year in mining activities and related processes. These statistics represent only commodity items or physical goods (cost of services or overhead charges such as advertising, insurance, depreciation, etc. are not included) whether purchased from others or received as transfers (in the form of materials, components or semi-processed goods) from other establishments of the reporting company. Included are maintenance and repair supplies not chargeable to fixed assets accounts and any amounts charged by other establishments for work done on materials owned by the reporting establishment. Cost of repairs or maintenance done by outside contractors and cost of returnable containers are not included.

(b) Non-mining activities

1. Purchases for re-sale as such

Figures represent cost of materials or products purchased from others by the reporting establishment (or received as transfers from other establishments of the reporting company) for re-sale as such in the same condition as purchased. Included are any finished products received as consignment from other countries.

2. Other materials and supplies used

Figures represent the cost of materials and supplies, if any, used in new construction and in the production of machinery and equipment (for the use of the reporting establishment) by the establishment's own employees. Included are materials used for any capital repairs and alterations carried out by the establishment's employees. Amounts paid to outside contractors for construction and repair work are not included nor is the cost of purchased machinery and equipment. Also included is the cost of office supplies not chargeable to fixed assets accounts and the cost of such other items of materials and supplies used as food, beverages and supplies for establishment-operated cafeterias and lunch counters, first aid and medical supplies, laboratory supplies, etc.

Value of Production

(a) Value of production of goods produced in the establishment

These figures represent the values in Canadian dollars of products shipped by the reporting establishments adjusted by changes in value between closing and opening inventory values of goods-in-process and finished products on hand. Included are revenues from repairs and custom work performed for other establishments and the cost (book value) of any goods produced by the mining establishment and shipped on a rental basis.

All products and by-products of own production shipped from the establishment are covered, including transfer shipments to sales outlets, distributing warehouses or to other processing plants of the reporting firm, when such units are treated as separate establishments. Production values are net of returned goods, discounts, returns, allowances, sales tax, excise taxes and duties, returnable containers and charges for outward transportation by common or contract carriers. Transportation or delivery expense incurred by the reporting establishment's own carriers are included.

Shipments of goods of own production of establishments which are coded to some other division of the Standard Industrial Classification (on the basis of principal activity) but which are engaged in mining as a subsidiary activity are collected by means of the Commodity questionnaire referred to earlier. Such shipments together with shipments of goods of own production of establishments forming the universe of mineral industries are compiled and recorded under appropriate headings in the various mineral industry publications; however, operational details relating to the production of such commodities are **not** included in the **principal** statistics shown in the reports for individual mineral industries.

(b) Shipments of goods not of own manufacture

These figures represent the net selling value at establishment (net of discounts, returns, allowances, sales

taxes and excise duties and taxes and transportation charges by common or contract carriers) of all products or materials (including products transferred from other establishments of the reporting firm) sold as such in the same condition as purchased or received as transfers. All sales of consignment goods from other countries are included.

(c) Other revenue

Figures represent the book value of fixed assets, if any, (new construction and machinery and equipment including major repairs, alterations, additions, modifications, installation and assembly work) produced during the year for the use of reporting establishments by the establishment's own employees and for which depreciation accounts are maintained. Included also are any revenues from the sale of electricity, servicing revenues, commissions on sales (when not included in value of sales), revenue for company-operated cafeterias and lunch counters and revenue from outside installation or construction work not related to the establishment's own products, sale of used materials (excluding sale of used fixed assets) research and development work, etc. As mentioned previously the figures do not include non-operating revenue such as rent, dividends, interest, etc.

Value Added

(a) By mining activities

Figures are compiled by deducting the cost of operating materials, supplies, etc. and fuel and electricity consumed from the value of production.

(b) By non-mining activities

The figures are compiled by deducting the cost of goods purchased for re-sale (adjusted for changes in the value of inventories of goods purchased for re-sale) and the cost of non-mining materials and supplies used from the value of shipments of goods not of own manufacture, plus other revenue.

(c) By total activities

The figures consist of value added by mining activities plus value added by non-mining activities. "Value added" is sometimes referred to as net output or net production. However, to arrive at the National Accounts concept of net production, or Gross Domestic Product at "Factor cost" it would be necessary to subtract also the cost of advertising, insurance and other business expenses which are not collected as part of the annual Census of mining. "Value added" figures for the primary industries, manufacturing and construction are published in DBS publication Catalogue No. 61-202. "Survey of Production".

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