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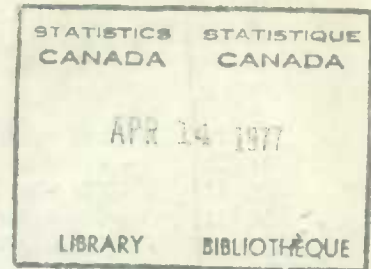
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THE NICKEL-COPPER MINING, SMELTING AND REFINING INDUSTRY 1959

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- .. figures not available.
- ... figures not appropriate or not applicable.
- nil or zero.
- P preliminary figures.

THE NICKEL-COPPER MINING, SMELTING AND REFINING INDUSTRY

1959

Statistics relating to the Nickel-Copper Mining, Smelting and Refining Industry, as shown in this report, include those pertaining to the mining of nickel-copper ores, the smelting of these ores in Canada and the production in the Dominion of refined copper, nickel, etc., by the firms constituting this industry.

In Ontario there were three firms producing nickel-copper ores in the Sudbury area. Two of these concerns also operated metallurgical plants. The International Nickel Company of Canada, Limited, had smelters at Copper Cliff and Coniston, while the Falconbridge Nickel Mines Ltd. smelted its ores at the Falconbridge mine located a few miles east of the town of Sudbury. This last-named company exported its matte to a refinery located at Kristiansand, Norway.

In addition to production of nickel, copper and the platinum metals, there is an important recovery from these ores of the associated metals—silver, cobalt, gold, selenium and tellurium—and of sulphur, in the form of sulphur dioxide, for the manufacture of sulphuric acid and liquid sulphur dioxide. The total gross value of the various primary products of this industry considered as a whole was estimated at \$618,361,667 in 1959 compared with \$435,443,727 in 1958. Production was affected in 1958 by a labour strike at the plants of the International Nickel Co. Limited.

The relatively small amount of nickel-oxide sometimes produced at Deloro, Ontario, is recovered from silver-cobalt-nickel-arsenic ores mined in northern Ontario. Smelter matte made by the Inter-

national Nickel Company of Canada Limited, is treated in plants located at Clydach, Wales; Huntington, West Virginia, U.S.A.; and at Port Colborne and Copper Cliff in Ontario. Converter copper made by the International Nickel Company is electrolytically refined at Copper Cliff and refined nickel is produced by the company at Port Colborne. In 1957 the International Nickel Company of Canada Limited, shipped ores from the Garson, Creighton, Levack, Froid and Murray mines. Falconbridge Mines Limited, operated the Falconbridge, East, McKim, Onaping, Hardy, Longwack Fecunis Lake and Boundary mines.

The Sherritt-Gordon Mines Ltd., mined and milled nickel-copper ore at Lynn Lake, Manitoba. The nickel concentrates were shipped to the firm's refinery at Fort Saskatchewan, Alberta, and the copper concentrates were treated at the Noranda smelter. Concentrates produced by North Rankin Nickel Mines at Rankin Inlet, Northwest Territories were shipped to the Sherritt-Gordon refinery for treatment. Giant Nickel Mines Ltd. in British Columbia shipped concentrates to the refinery at Fort Saskatchewan.

The industry employed 21,913 persons to whom \$110,373,734 were paid as salaries and wages. Fuel cost \$23,392,709 and 1,528,692,965 kwh. of electricity were purchased for \$7,409,840. Process supplies cost \$30,968,498. Included in the above figures were the data relevant to the nickel-copper mines which used \$1,217,089 worth of fuel and 446,187,979 kwh. of electricity were purchased for \$2,239,837. Process supplies used by mines cost \$15,234,554.

**TABLE 1. Principal Statistics of the Nickel-Copper Mining, Smelting and Refining Industry,¹
Significant Years, 1921-59**

Year	Estab- lish- ments	Em- ployees	Salaries and wages	Cost of fuel and electricity at works	Cost of process supplies, materials, ² containers, at works	Gross selling value of products (f.o.b. works)	Net ³ value of production
1921	12	..	2,482,965	978,312	...	..	..
1929	8	6,260	10,117,197	2,155,917	..	..	..
1931	10	4,300	7,004,403	2,472,510	..	27,709,234	..
1933	11	3,598	5,588,610	2,582,216	..	31,191,527	..
1937	16	10,758	18,752,727	7,454,717	11,210,353	111,353,066	92,687,996
1939	12	11,494	20,557,838	7,437,370	12,068,595	95,714,524	76,208,559
1941	11	12,759	25,270,497	10,213,183	13,991,741	117,287,713	93,082,789
1944	14	15,457	29,217,445	12,795,637	18,449,774	121,493,774	90,130,255
1946	20	10,181	22,240,671	8,552,300	11,065,124	88,444,103	68,826,679
1949	16	14,398	44,657,092	14,342,097	12,821,605	172,391,089	145,227,387
1951	16	18,546	64,543,280	16,500,093	179,164,037	410,677,639	215,013,509
1954	43	21,172	87,776,066	20,747,907	220,227,328	489,255,764	244,636,028
1955	44	21,356	92,113,487	19,977,063	254,533,382	570,270,680	292,488,506
1956	61	22,684	103,619,044	22,103,753	270,422,772	614,096,947	318,652,627
1957	92	23,464	113,459,592	23,703,062	290,781,769	640,667,065	321,763,442
1958	54	17,784	88,929,124	17,230,033	184,064,905	435,443,727	229,680,771
1959	62	21,913	110,373,734	23,392,709	287,221,660	618,361,667	300,852,611

¹ Does not include data for mines, power plants, etc., operated by subsidiary companies.

² Cost of ores included from 1950 onwards.

³ Gross value less fuel, electricity, process supplies, ores, treatment charges and freight.

TABLE 2. Output from Nickel-Copper Mines in Canada, 1957-59

	1957	1958	1959
	tons (2,000 pounds)		
Ore hoisted	19,289,516	12,861,918	18,964,386
Ore smelted directly	1,943,787	1,376,237	1,687,199
Ore milled	17,354,529	11,540,530	17,079,993
Concentrates produced	3,992,898	2,644,269	4,116,490

TABLE 3. Production of Nickel¹ from Canadian Ores, 1950-59

Year	Tons	Value	Year	Tons	Value
		\$			\$
1950	123,659	112,104,685	1955	174,928	215,866,007
1951	137,903	151,269,994	1956	178,515	222,204,860
1952	140,559	151,349,438	1957	187,958	258,977,309
1953	143,693	160,430,098	1958	139,559	194,142,019
1954	161,279	180,173,392	1959	186,550	257,008,801

¹ Usually includes a small quantity of nickel recovered from silver-cobalt ores.

TABLE 4. Production of Nickel,¹ by Months, 1957-59

Month	1957	1958	1959	Month	1957	1958	1959
	tons (2,000 pounds)				tons (2,000 pounds)		
January	16,509	16,655	8,072	August	16,706	12,517	16,804
February	15,027	15,841	12,640	September	15,354	11,756	16,225
March	16,733	15,798	14,947	October	15,332	3,370	17,232
April	15,347	15,058	15,518	November	14,337	2,889	16,916
May	16,225	15,177	16,647	December	14,938	3,154	18,711
June	15,477	14,548	16,624	Totals	187,958	139,559	186,555
July	15,873	12,796	16,219				

¹ Refined nickel and nickel in oxide produced, plus recoverable nickel in matte, etc., exported.

TABLE 5. Imports and Exports of Nickel, 1958 and 1959

	1958		1959	
	Quantity	Value	Quantity	Value
		\$		\$
Imports				
Nickel in ingots, blocks, shot .....	...	...	479,905	143,711
Nickel and nickel-silver in ingots	409,769	116,039	...	...
Nickel rods for wire (90% nickel)	51,873	69,966	96,861	125,317
Nickel in bars and rods, strips and sheets	3,801,855	3,647,967	3,082,497	3,201,438
Nickel-silver bars, rods and strips	8,054	8,113	...	...
Nickel-chromium in bars	37,429	51,672	43,221	58,685
Nickel, manufactures of, not plated .....	...	125,455	...	120,347
Nickel-plated household hollow-ware .....	...	2,513	...	...
Nickel household hollow-ware .....	...	1,706,385	...	2,025,501
Nickel-plated ware, n.o.p. ....	...	...	...	12,015
Nickel-silver in ingots, blocks .....	...	...	12,427	...
Exports				
Nickel in matte or speiss	67,658	92,495,804	65,657	86,771,202
Nickel in oxide	1,393	1,297,732	4,157	4,858,213
Nickel, fine	85,168	118,786,031	102,111	133,227,349

TABLE 6. Production, Consumption and Exports of Nickel, 1950-59

Year	Production in Canada (all forms, including content in oxide and in matte exported)	Producers' shipments to domestic consumers	Exports		
			Nickel contained in matte or speiss	Nickel contained in oxide	Refined nickel
tons (2,000 pounds)					
1950	123,659	2,226	53,090	1,667	66,894
1951	137,903	2,744	57,882	944	72,357
1952	140,559	2,223	63,753	1,211	77,058
1953	143,693	2,275	63,909	1,299	79,909
1954	161,279	2,595	65,823	1,486	91,410
1955	174,928	5,020	65,954	1,453	106,473
1956	178,515	5,545	70,715	1,767	104,356
1957	187,958	4,532	73,694	1,706	103,258
1958	139,554	4,099	67,658	1,393	85,168
1959	186,555	3,233	65,657	4,157	102,111

TABLE 7. World Production of Nickel

Source: "Annual Report of The American Bureau of Metal Statistics"

Country	1955	1956	1957	1958	1959
tons (2,000 pounds)					
Canada ¹	174,928	178,515	187,958	139,559	186,341
New Caledonia ²	18,427	26,358	33,470	13,400	28,105
United States ³	3,807	6,722	10,070	11,740	11,606
Cuba ⁴	15,138	16,062	22,245	19,782	19,658
Finland ²	134	164	89	125	110
Union of South Africa ⁵	2,598	3,624	4,562	3,800	2,900
Russia ⁶	48,000	55,000	55,000	58,000	60,000
Total world (estimate)	263,100	283,500	313,500	249,000	309,000

¹ Production in all forms from Canadian ores.² Nickel content of ore.³ By-product in electrolytic refining of copper.⁴ Nickel content and small fraction of cobalt in oxide.⁵ Nickel content of matte.⁶ Conjectural.

TABLE 8. Production of New Copper, by Provinces and by Forms, 1958 and 1959

	1958		1959	
	Tons	Value	Tons	Value
By provinces:				
Newfoundland	14,751	7,499,372	14,989	8,876,570
Nova Scotia	—	—	—	—
New Brunswick	328	166,683	—	—
Quebec	131,445	66,826,788	134,912	79,894,820
Ontario	142,035	71,267,895	188,273	110,547,037
Manitoba	12,601	6,383,403	12,945	7,666,147
Saskatchewan	37,510	19,070,139	35,536	21,044,574
British Columbia	6,010	2,995,902	8,121	4,781,508
Northwest Territories	434	220,748	493	292,157
Canada	345,114	174,430,930	395,269	233,102,813
By forms (where computed):				
In blister and anode copper produced ¹	319,424	162,372,246	366,060	216,780,520
In ores, concentrates and copper matte exported	9,550	4,795,774	11,053	6,517,969
In nickel-copper matte exported	16,140	7,262,910	18,156	9,804,324
Total accounted for	345,114	174,430,930	395,269	233,102,813

¹ Includes a quantity of copper contained in gold-silver and nickel-copper ores shipped to Canadian smelters.

TABLE 9. Production of Copper,¹ by Months, 1957-59

Month	1957	1958	1959	Month	1957	1958	1959
January	26,402	32,868	24,321	August	30,477	30,617	34,693
February	29,747	30,668	27,669	September	31,376	27,446	35,388
March	31,343	34,239	32,079	October	31,756	22,308	35,632
April	28,415	32,642	31,782	November	34,240	20,081	34,907
May	26,993	32,371	32,274	December	34,294	18,825	34,173
June	27,280	32,168	36,531	Year	359,109	345,114	395,269
July	26,786	30,881	35,720				

¹ Blister copper produced in Canada, plus recoverable copper in concentrates, matte, etc., exported.

TABLE 10. Production of Copper from Ontario Ores Only, 1950-59

Year	Tons	Value	Year	Tons	Value
		\$			\$
1950	117,210	54,411,033	1955	146,407	107,215,943
1951	128,809	70,861,789	1956	156,271	129,552,450
1952	125,346	70,973,056	1957	171,703	98,498,877
1953	130,582	77,587,439	1958	142,035	71,267,895
1954	140,776	82,099,408	1959	188,273	110,547,037

Note: Mostly from nickel-copper ores.

TABLE 11. Production of Copper, by Kinds of Ores and by Provinces, 1958 and 1959

Province	From copper-gold-silver ores	From nickel-copper ores	From other ores	Total
	tons			
1958				
Newfoundland	11,619	—	3,132	14,751
Nova Scotia	—	—	—	—
New Brunswick	328	—	—	328
Quebec	127,674	—	3,771	131,445
Ontario	31,839	106,923	3,273	142,035
Manitoba	7,945	4,656	—	12,601
Saskatchewan	37,510	—	—	37,510
British Columbia	4,575	340	1,095	6,010
Northwest Territories	—	434	—	434
Canada	221,490	112,353	11,271	345,114
1959				
Newfoundland	12,097	—	2,892	14,989
Nova Scotia	—	—	—	—
New Brunswick	—	—	—	—
Quebec	131,877	—	3,035	134,912
Ontario	28,328	157,167	2,778	188,273
Manitoba	8,365	4,580	—	12,945
Saskatchewan	35,536	—	—	35,536
British Columbia	6,781	249	1,091	8,121
Northwest Territories	—	493	—	493
Canada	222,984	162,489	9,796	395,269

TABLE 12. Production of Refined Copper, 1950-59

Year	Tons	Year	Tons
1950	238,204	1955	288,997
1951	245,466	1956	328,458
1952	196,320	1957	323,540
1953	236,966	1958	329,239
1954	253,365	1959	365,366

TABLE 13. Production of Refined Copper, by Months, 1957-59

Month	1957	1958	1959	Month	1957	1958	1959
	tons				tons		
January	25,469	32,237	29,573	August	26,943	28,596	28,433
February	21,861	28,621	20,675	September	24,633	26,464	32,642
March	27,663	29,825	29,734	October	30,312	20,756	34,240
April	27,398	30,906	30,571	November	27,331	18,891	31,682
May	29,086	32,126	30,718	December	31,556	20,056	34,643
June	24,093	29,387	30,490	Year	323,540	329,239	365,366
July	27,195	30,374	31,965				

TABLE 14. Imports and Exports of Copper, 1958 and 1959

	1958		1959	
	Quantity	Value	Quantity	Value
		\$		\$
Imports				
Copper in blocks, pigs and ingots	lb. 2,700	1,050	209,000	64,865
Copper scrap	" 2,929,700	763,328	7,568,000	2,054,307
Copper in bars or rods for the manufacture of trolley, telegraph and telephone wires, electric wires and electric cables	" 5,303,700	1,507,262	3,535,400	1,237,086
Copper bars or rods, n.o.p.	" 255,900	86,707	195,800	80,839
Copper in strips, sheets or plates	" 1,299,700	479,101	920,600	435,204
Copper tubing, not manufactured	" 4,320,100	1,625,095	2,193,100	1,071,720
Copper rollers for wall paper	"	85,809	...	114,297
Copper wire, n.o.p.	lb. 210,440	109,557	50,239	31,410
Copper wire cloth, woven	"	6,184	...	9,317
Copper manufactures, n.o.p.	"	1,131,034	...	1,483,485
Copper sulphate (blue vitriol)	lb. 2,250,202	238,303	2,617,143	288,646
Copper oxide	" 205,360	71,839	115,070	45,548
Exports				
Copper, fine, contained in ore, matte, regulus etc.	ton 30,316	13,603,456	32,070	17,017,395
Copper, old and scrap, slag skimmings	" 11,087	4,323,272	6,236	3,009,502
Copper in ingots, bars, cakes, slabs and billets	" 224,638	111,996,370	222,437	130,246,946
Copper in rods, strips, sheets and plates	" 11,788	7,189,757	12,669	8,552,763
Copper tubing	" 2,584	2,398,923	4,221	4,340,453
Copper wire and cable, insulated	"	2,075,450	...	2,464,038
Copper wire, bare	"	149,784	...	391,466
Copper wire, screen	"	2,599	...	5,020
Copper manufactures, n.o.p.	"	48,923	...	39,428

TABLE 15. Production of Primary Copper, Exports and Imports, 1950-59

Year	Production in Canada ¹	Exports			Imports, refined copper
		Copper in ore, matte, etc.	Blister copper	Refined copper, ingots, bars, etc.	
tons (2,000 pounds)					
1950	264,209	32,299	—	134,244	122
1951	269,971	36,853	—	101,832	1,511
1952	258,038	34,437	27,974	113,675 ²	12,973
1953	253,252	51,158	3,527	131,994	5,515
1954	302,732	47,411	4,712	156,130	1,703
1955	325,994	41,565	—	153,199	35
1956	354,860	40,994	—	174,844	...
1957	359,109	46,548	—	198,794	...
1958	345,114	30,316	—	224,638	¹
1959	395,269	32,070	—	222,437	105

¹ Blister copper, plus recoverable copper in matte and concentrates exported.² Includes blister and anode copper exported for refining.

TABLE 16. Production of Refined Copper, Consumption, Imports and Exports, 1950 - 59

Year	Production in Canada	Domestic consumption	Exports	Imports	Stocks at end of period
tons (2,000 pounds)					
1950	238,204	106,876	134,244	122	11,598
1951	245,466	134,174	101,832	1,511	19,590
1952	196,320	130,347	85,701 ¹	12,973	17,935
1953	236,966	105,482	128,467 ¹	5,515	11,728
1954	253,365	102,432	151,418 ¹	1,703	9,736
1955	288,997	138,559	153,199	35	8,293
1956	328,458	145,286	174,844	1	14,736
1957	323,540	118,225	198,794	1	23,276
1958	329,239	122,893	224,638	...	13,681
1959	365,366	129,973	222,437	...	17,972

¹ Excludes blister and anode copper which was included in export and import figures shown in the "Trade of Canada" reports.

TABLE 17. World Production of Copper by Countries of Origin of Ore¹

Source: "Annual Report of The American Bureau of Metal Statistics"

Country	1955	1956	1957	1958	1959
tons (2,000 pounds)					
United States	1,014,442	1,114,285	1,092,744	990,253	840,000
Mexico	60,269	60,478	66,799	71,609	63,133
Canada	325,994	354,860	359,109	345,114	399,362
Cuba	19,507	16,046	15,306	13,992	9,942
Bolivia ²	3,855	4,897	4,319	3,168	2,460
Chile	477,869	539,839	533,855	509,541	601,855
Peru	47,843	50,966	63,023	59,104	53,146
Ecuador	6	-	-	-	-
Total America	1,949,785	2,141,371	2,138,155	1,992,781	1,969,898
Austria	2,841	2,579	2,574	2,695	2,726
Finland	25,412	24,830	28,321	31,569	33,132
France	650	606	496	794	672
Germany West	1,335	1,076	1,203	1,156	1,584
Italy	273	494	428	761	659
Norway	15,419	16,488	16,787	17,501	16,094
Spain ³	6,726	7,525	11,077	7,466	12,137
Sweden	17,275	18,436	19,914	20,453	19,079
Yugoslavia	32,098	35,087	36,883	38,840	38,141
Total Europe	102,029	107,121	117,683	121,235	124,224
Japan	80,466	85,458	90,066	89,836	92,911
India	8,155	8,543	8,790	8,782	8,459
Korea, Republic of	1,400	1,450	1,011	842	529
Turkey	26,313	27,101	23,716	24,676	27,385
Philippines	19,247	29,721	44,513	51,841	54,587
Cyprus ³	26,123	39,497	43,676	36,614	39,978
Total Asia	161,704	191,770	211,772	212,591	223,849
Belgian Congo	259,158	275,535	267,026	261,865	310,952
Northern Rhodesia	395,307	445,464	480,313	441,072	598,834
South West Africa	23,739	27,953	30,466	32,065	31,695
Uganda	-	168	8,360	12,130	13,362
Union of South Africa	47,484	48,474	47,752	53,375	53,575
Total Africa	725,688	797,594	833,917	800,507	1,008,418
Australia	46,675	54,723	58,465	78,867	101,062
Free world total⁴	2,985,881	3,292,579	3,356,992	3,205,981	3,427,451
Russia ⁵	372,500	417,000	465,000	510,000	510,000
Germany, East ⁵	25,300	27,500	27,500	27,500	27,500
China ⁵	9,900	11,000	13,000	13,000	16,500
Soviet sphere total⁶	407,700	455,500	505,500	550,500	554,000
World total, as reported	3,393,581	3,748,079	3,862,492	3,756,481	3,981,451

¹ Includes copper contents or recoverable contents of ores or concentrates smelted in country of origin and/or shipped to other countries for smelting.

² Exports.

³ Excludes copper content of iron pyrites which may or may not have been recovered.

⁴ In addition, there is production in France, Portugal, Taiwan, Algeria, Angola, Southern Zone Morocco, Southern Rhodesia, and Tanganyika; the total of all these countries is estimated to be about 11,000 tons in 1958.

⁵ Conjectural.

⁶ In addition there is production in Hungary and Poland; the total of which is estimated to be about 10,000 tons in 1958.

TABLE 18. Canadian Copper Ore Reserves, as Officially Reported
 Source: "Annual Report of the American Bureau of Metal Statistics"

	Year	Province	Ore	Average grade	Copper content
			short tons	%	short tons
East Sullivan	1959	Quebec	3,004,000	1.00	30,000
Falconbridge	1959	Ontario	46,182,450	0.82	378,700
Hudson Bay	1959	Manitoba	18,245,500	2.64	481,700
International Nickel	1959	Ontario	264,864,000	...	7,964,900 ¹
Noranda (Horne) Sulphide ore	1959	Quebec	9,303,000	2.29	213,000
Normetal	1959	Quebec	1,598,700	3.59	57,400
Queмонт	1959	Quebec	6,220,000	1.32	82,100
Sherritt-Gordon (Lynn Lake)	1959	Manitoba	14,158,000	...	212,370 ¹
Waite Amulet	1959	Quebec	550,000	4.70	25,900
Geco Mines Ltd.	1959	Ontario	16,042,500	1.94	311,200
Manitou-Barrie	1959	Quebec	800,000	1.10	8,800

¹ Copper-nickel content.

TABLE 19. Production of Metals of the Platinum Group¹ Copper-Nickel Ores, 1950-59

Year	Platinum ²		Palladium ³	
	Fines ounces	Value	Fines ounces	Value
		\$		\$
1950	124,453	10,246,215	148,741	7,578,144
1951	153,461	14,540,430	164,905	7,950,107
1952	122,315	10,916,614	157,407	7,559,109
1953	137,545	12,550,981	166,018	7,495,409
1954	154,356	12,950,469	189,350	7,956,087
1955	170,494	14,747,732	214,252	8,321,633
1956	151,357	15,725,992	163,461	6,681,098
1957	199,565	17,835,124	216,582	7,896,209
1958	146,092	9,481,371	154,366	4,840,072
1959	150,378	11,015,189	177,713	5,916,989

¹ Prior to 1945 the figures reported were the refined metals recovered and the contents of concentrates sold each year. The figures for 1945 represent the metal content of platinum metals concentrates produced, together with adjustment of previous figures to this basis for the years 1938 through 1944.

² In addition, a relatively small quantity of alluvial platinum is usually recovered annually in British Columbia; such recovery in 1946-1947, nil; 1948, 242 ounces; 1949, 93 ounces; 1950, 129 ounces; 1951, 22 ounces; 1952, 2 ounces; 1953-58, nil; 1959, 4 ounces.

³ Includes other platinum metals except platinum, and represents the entire Canadian production.

TABLE 20. Production of Selenium and Tellurium from Nickel-Copper Ores, 1950-59

Year	Selenium		Tellurium	
	Pounds	Value	Pounds	Value
		\$		\$
1950	63,709	154,176	6,010	11,419
1951	82,409	267,005	6,301	11,594
1952	81,578	265,129	5,710	9,707
1953	92,698	389,332	4,525	7,919
1954	94,826	474,130	7,195	12,591
1955	94,465	702,488	6,455	11,296
1956	109,156	1,473,606	6,305	11,034
1957	86,459	951,049	6,915	12,101
1958	90,295	677,213	6,692	11,376
1959	101,400	709,800	6,900	14,835

Note: These metals are recovered also from other types of ores, in addition to above.

TABLE 21. Production of Gold and Silver from Nickel-Copper Ores, 1950-59

Year	Gold		Silver	
	Fine ounces	Value	Fine ounces	Value ¹
		\$		\$
1950	36,264	1,379,845	1,045,106	844,655
1951	40,394	1,488,519	1,128,205	1,066,718
1952 ²	43,689	1,497,222	1,231,047	1,028,170
1953	39,726	1,367,369	1,254,637	1,054,020
1954	46,408	1,580,221	1,292,300	1,075,930
1955	46,896	1,618,850	1,497,191	1,320,223
1956	44,752	1,541,706	1,404,032	1,259,136
1957	43,993	1,475,965	1,589,881	1,389,079
1958	48,249	1,639,501	1,236,118	1,073,074
1959	43,295	1,453,413	1,402,273	1,230,915

¹ Estimated.² Includes revised data - 1947-51 - of unreported content of plantiferous concentrates.

TABLE 22. Employees and their Earnings in Nickel-Copper Mines, Smelters and Refineries, 1955-59

Year	Employees					Man-hours worked	Earnings		
	Administration		Workmen		Total employees		Administration	Workmen	Total
	Male	Female	Male	Female					
	number					dollars			
1955	2,301	224	18,818	13	21,356	41,580,447	13,847,735	78,265,752	92,113,487
1956	2,458	217	19,996	13	22,684	45,810,446	15,605,023	88,014,021	103,619,044
1957	2,663	231	20,557	13	23,464	50,766,018	17,742,736	95,716,846	113,459,582
1958	2,545	240	14,983	16	17,784	33,908,166	18,756,334	70,172,790	88,929,124
1959	2,504	245	19,149	15	21,913	42,781,529	18,529,344	91,844,390	110,373,734

TABLE 23. Workmen, by Sex and Months, Entire Industry, 1958 and 1959

Month	1958		1959	
	Male	Female	Male	Female
	number			
January	20,316	17	17,312	14
February	20,224	19	17,778	14
March	19,023	19	18,329	14
April	18,910	14	18,646	14
May	18,652	14	19,086	14
June	18,511	15	19,534	14
July	18,374	15	19,819	15
August	18,189	15	19,847	15
September	17,043	15	19,699	15
October	3,389	17	19,874	15
November	3,341	16	19,871	15
December	3,547	16	19,978	15
Average	14,983	16	19,149	15
Total man-hours worked	28,100,342		37,035,280	

TABLE 24. Workmen, by Months, in Nickel-Copper Mines Only,¹ 1958 and 1959

Month	1958					1959				
	Mine			Mill	Total	Mine			Mill	Total
	Surface		Under-ground	Male		Surface		Under-ground	Male	
	Male	Female				Male	Female			
	number									
January	2,253	17	8,072	728	11,070	1,951	14	6,460	590	9,015
February	2,157	19	8,054	708	10,938	1,928	14	6,797	568	9,307
March	2,096	19	7,372	696	10,183	1,922	14	7,061	573	9,570
April	2,129	14	7,242	730	10,115	1,938	14	7,098	575	9,625
May	2,115	14	7,005	734	9,868	2,056	14	7,106	653	9,829
June	2,108	15	6,938	676	9,737	2,049	14	7,273	694	10,030
July	1,947	15	7,017	674	9,653	2,136	15	7,404	723	10,278
August	1,918	15	6,895	641	9,469	2,109	15	7,472	713	10,309
September	1,862	15	6,710	584	9,171	2,124	15	7,380	687	10,206
October	859	17	1,301	334	2,511	2,163	15	7,560	700	10,384
November	822	16	1,345	334	2,517	2,095	15	7,665	688	10,463
December	800	16	1,314	330	2,460	2,105	15	7,737	715	10,572
Average	1,757	16	5,774	599	8,146	2,052	15	7,246	656	9,969
Total man-hours worked	15,530,463					19,319,197				

¹ Included in Table 23.TABLE 25. Workmen, by Months, in Nickel-Copper Smelters and Refineries Only,¹ 1958 and 1959

Month	1958		1959		Month	1958		1959	
	Male		Male			Male		Male	
	number					number			
January	9,263		8,311		September	7,887		9,508	
February	9,305		8,485		October	895		9,505	
March	8,859		8,773		November	840		9,423	
April	8,809		9,035		December	1,103		9,421	
May	8,798		9,271		Average	6,853		9,195	
June	8,789		9,518		Total man-hours worked ...	12,569,879		17,716,083	
July	8,736		9,556						
August	8,735		9,553						

¹ Included in Table 23.

TABLE 26. Fuel and Electricity Used in the Nickel-Copper Mines, Smelters and Refineries, 1959

Kind	Quantity	Cost at plant	
		\$	
Bituminous coal (a) From Canadian mines	short ton	70,003	820,720
(b) Imported	"	461,130	6,060,322
Sub-bituminous coal (from Alberta mines only)		—	—
Anthracite coal	short ton	77	2,276
Lignite coal		—	—
Coke (for fuel only)	short ton	220,123	4,855,976
Gasoline, (includes gasoline used in cars and trucks)	Imp. gal.	263,468	85,220
Kerosene or coal oil	"	13,736	3,584
Fuel oil	"	25,982,994	2,944,748
Wood (cords of 128 cubic feet of piled wood)	cord	24	162
Gas (a) Liquefied petroleum gases, (propane, etc.)	Imp. gal.	31,703	11,329
(b) Other manufactured gas	M cu. ft.	4,100	1,591
(c) Natural gas	"	4,149,544	1,183,442
Other fuel	—	—	13,499
Electricity purchased for power and lighting	kwh.	1,455,641,017	7,034,801
Electricity purchased for other purposes	"	73,051,948	375,039
Totals (cost only) .....		...	23,392,709
Electricity generated (a) For own use		—	—
(b) For sale		—	—

TABLE 27. Fuel and Electricity Used in the Nickel-Copper Mines, 1959

Kind	Quantity	Cost at plant
		\$
Bituminous coal (a) From Canadian mines	—	—
(b) Imported	short ton 22,285	284,987
Sub-bituminous coal (from Alberta mines only)	—	—
Anthracite coal	short ton 77	2,276
Lignite coal	—	—
Coke (for fuel only)	—	—
Gasoline, (includes gasoline used in cars and trucks)	Imp. gal. 133,978	49,258
Kerosene or coal oil	" 3,464	989
Fuel oil	" 6,330,400	876,371
Wood (cords of 128 cubic feet of piled wood)	cord 24	162
Gas (a) Liquefied petroleum gases (propane, etc.)	Imp. gal. 4,267	1,455
(b) Other manufactured gas	M cu. ft. 4,100	1,591
(c) Natural gas	—	—
Other fuel	—	—
Electricity purchased for power and lighting	kwh. 446,187,979	2,239,837
Electricity purchased for other purposes	—	—
Totals (cost only) .....	...	3,456,926
Electricity generated (a) For own use	kwh. 44,144,242	...
(b) For sale	" 2,277,101	53,259

TABLE 28. Fuel and Electricity Used in the Nickel-Copper Smelters and Refineries, 1959

Kind	Quantity	Cost at plant
		\$
Bituminous coal (a) From Canadian mines	short ton 70,003	820,720
(b) Imported	" 438,845	5,775,335
Sub-bituminous coal (from Alberta mines only)	—	—
Anthracite coal	—	—
Lignite coal	—	—
Coke (for fuel only)	short ton 220,123	4,855,976
Gasoline, (includes gasoline used in cars and trucks)	Imp. gal. 129,490	35,962
Kerosene or coal oil	" 10,272	2,595
Fuel oil	" 19,652,594	2,068,377
Wood (cords of 128 cubic feet of piled wood)	—	—
Gas (a) Liquefied petroleum gases (propane, etc.)	Imp. gal. 27,436	9,874
(b) Other manufactured gas	—	—
(c) Natural gas	M cu. ft. 4,149,544	1,183,442
Other fuel .....	...	13,499
Electricity purchased for power and lighting	kwh. 1,009,453,038	4,794,964
Electricity purchased for other purposes	" 73,051,948	375,039
Totals (cost only) .....	...	19,935,183
Electricity generated (a) For own use	kwh. 38,744,200	...
(b) For sale	—	—

TABLE 29. Specified Taxes Paid by the Nickel-Copper Mining, Smelting and Refining Industry, 1957-59

	1957	1958	1959
	dollars		
Dominion income tax, including tax on non-operating revenue	32,278,135	12,575,448	6,550,635
Total provincial taxes	12,860,969	8,266,048	3,897,333
Total municipal taxes	1,447,061	1,550,379	1,697,550
Grand total taxes paid	46,586,165	22,391,875	12,145,518

TABLE 30. Miscellaneous Expenditures by the Nickel-Copper Mining, Smelting and Refining Industry, 1957-59

	1957	1958	1959
	dollars		
Workmen's compensation	1,291,043	1,049,612	1,514,222
Silicosis assessment	296,944	15,111	22,309
Unemployment insurance	759,044	512,355	700,128
Aggregate cost of all supplies purchased	73,711,206	66,816,402	71,747,198
Aggregate cost of plant and equipment purchased	22,090,970	15,737,416	8,542,230
Cost of buildings, machinery and equipment erected or installed during year	36,303,638	55,835,589	62,472,526

TABLE 31. Capital and Repair Expenditures in the Nickel-Copper Mining Industry, 1954-59

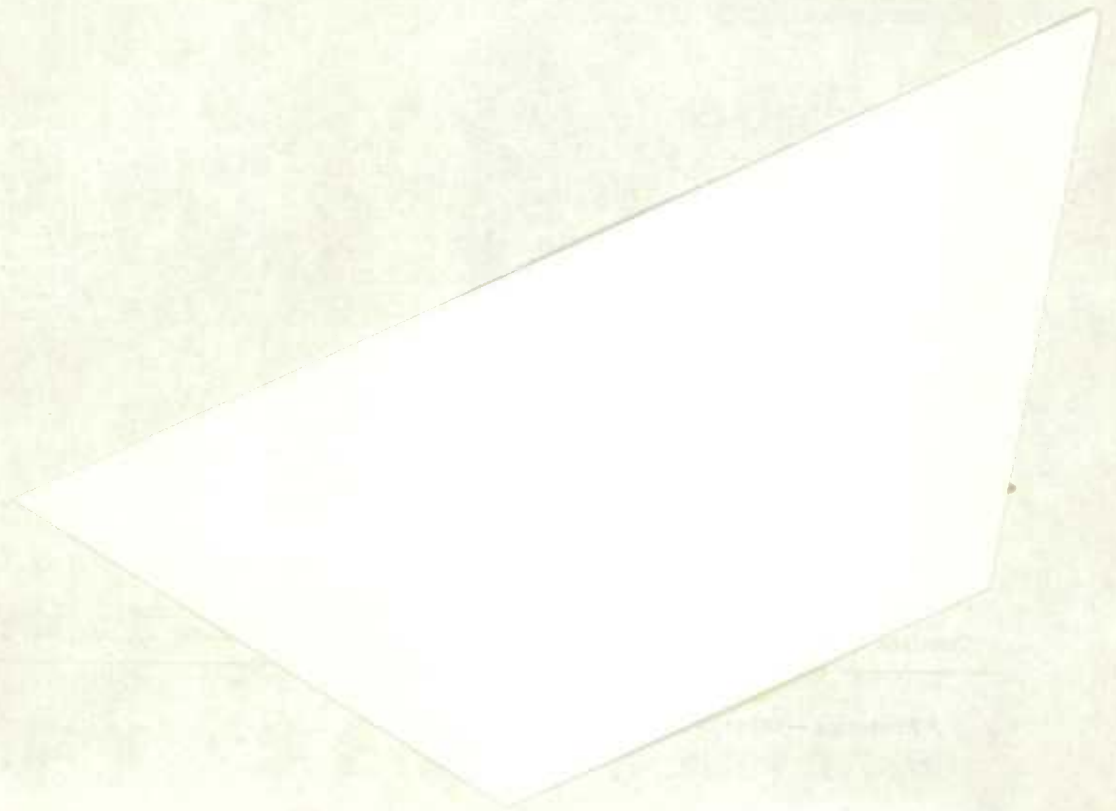
Source: "Private and Public Investment in Canada"

	Capital expenditures			Repair expenditures			Capital and repair expenditures		
	Con- struction	Machinery	Sub- total	Con- struction	Machinery	Sub- total	Con- struction	Machinery	Total
	thousands of dollars								
1954	11,566	9,142	20,708	2,328	7,218	9,546	13,894	16,360	30,254
1955	8,907	5,584	14,491	2,776	6,469	9,245	11,683	12,053	23,736
1956	12,104	7,317	19,421	3,062	7,279	10,341	15,166	14,596	29,762
1957	16,416	6,331	22,747	3,378	8,446	11,824	19,794	14,777	34,571
1958	10,420	4,176	14,596	2,689	6,757	9,446	13,109	10,933	24,042
1959 ^P	9,383	3,439	12,822	3,712	7,802	11,514	13,095	11,241	24,336

Directory of Firms in the Nickel-Copper Mining, Smelting and Refining Industry, 1959

Name of firm	Head office address	Location of Canadian plant
Quebec:		
Auf der Maur Corp.	2157 Mackay St., Montreal	Fred des Monts
Bachelor King Mines Ltd.	550 Sherbrooke St. W., Montreal	Montbray Twp.
Bibis Yukon Mines Ltd.	357 Bay St., Toronto, Ontario	Renault Lake
Bilson Quebec Mines Ltd.	100 d'Youville St., Quebec	La Matte Twp.
Blondeau Nickel Mines Ltd.	80 Richmond St. W., Toronto	Blondeau Twp.
Canadian Northwest Mines Oils Ltd.	357 Bay St., Toronto, Ontario	Lac Frotet
Complex Ore & Metals Co.	2157 Mackay St., Montreal	Lacoste Twp.
DeSalles Metal Co.	2157 Mackay St., Montreal	DeSalles Twp.
Dolmac Mines Ltd.	19 Melinda St., Toronto, Ontario	Galinee Twp.
Dumont Nickel Corp.	715 3rd Ave., Val D'Or	Duvernoy Twp.
Leys, Wm., Mining Corp. Ltd.	486 St. John St., Montreal	Beauchastel Twp.
Marchant Mining Co. Ltd.	100 d'Youville, Quebec	La Matte Twp.
Marlowe Mines Ltd.	2157 Mackay St., Montreal	Lacoste Twp.
Nipiron Mines Ltd.	302 Bay St., Toronto, Ontario	Subercase Twp.
Quebec North Mines Ltd.	2157 Mackay St., Montreal	DeSalles Twp.
R.M. Nickel Mines Ltd.	137 Wellington St. W., Toronto, Ont.	Beauchastel Twp.
Saguenay Exploration & Mining Inc.	753 avenue Wilder, Outremont	Jonquiere
Saguenay Mining & Smelting Co. Ltd.	2157 Mackay St., Montreal	DeSalles Twp.
Territory Mining Co. Ltd.	25 Adelaide St. W., Toronto, Ontario	St Fabien de Panet
Vanguard Explorations Ltd.	132 St James St. W., Montreal	Lac Frotet
Ontario:		
Falconbridge Nickel Mines, Ltd. ¹	44 King St. W., Toronto	Twps. of Falconbridge Blezard, McKim, Levack
International Nickel Company of Canada, Limited ¹	Copper Cliff	Mines: Twps. of Levack, Denison, Garson, Snider, McKim
Chellew Mines Ltd.	357 Bay St., Toronto	Pastagoni
Fatima Mining Co. Ltd.	25 Adelaide St. W., Toronto	Bartlett
Jonsmith Mines Ltd.	357 Bay St., Toronto	Sewell Twp.
Kordol Explorations Ltd.	19 Melinda St., Toronto	Hyman Twp.
Krefeld Graphite Gold Mines Ltd.	R.R. #2, Cooksville	Vogt Twp.
Mirado Nickel Mines Ltd.	220 Bay St., Toronto	Jackfish
Nickel Rim Mines Ltd.	100 Adelaide St. W., Toronto	MacLennan Twp.
Nickel Mining & Smelting Corp.	100 Adelaide St. W., Toronto	Gordon Lake
Norpax Nickel Mines Ltd.	85 Richmond St. W., Toronto	Reynard Lake
North American Rare Metals Ltd.	100 Adelaide St. W., Toronto	Scholes Twp.
Taurcanis Mines Ltd.	145 Yonge St., Toronto	Atikwa Lake
Worthington Mines Ltd.	176 Larch St., Sudbury	Drury Twp.
Norduna Mines Ltd. ¹	44 King St. W., Toronto	Falconbridge
Manitoba:		
Agassiz Mines Ltd.	1035 Erin St., Winnipeg 10	Granville Lake
Sherritt-Gordon Mines, Ltd. ¹	25 King St. West, Toronto	Lynn Lake
Canadian Nickel Co. Ltd.	Copper Cliff Ontario	Cross Lake
Canorama Explorations Ltd.	85 Richmond St. W., Toronto	Mystery Lake
Genrico Nickel Mine Ltd.	389 Main St., Winnipeg	Tow Lake
Indian Lake Mines Ltd.	100 Adelaide St. W., Toronto	Partridge Crop Lake
International Base Metals Ltd.	603 Paris Building, Winnipeg	English Lake
Maskwa Nickel Chrome Mines Ltd.	900 Hamilton Bldg., Winnipeg	Bird River
Mystery Lake Nickel Mines	Copper Cliff, Ontario	Cross Lake
Starratt Nickel Mines Ltd.	62 Richmond St. W., Toronto	Paint Lake
Jahala Lake Mines Ltd.	11 King St. W., Toronto	Moak Lake
British Columbia:		
Giant Nickel Mines Ltd. ¹	Box 820 Hope	Hope
Northwest Territories:		
North Rankin Nickel Mines Ltd. ¹	25 Adelaide St. W., Toronto	Rankin Inlet
Goldcrest Mines Ltd.	1201 - 80 King St. W., Toronto	Easter Island
Yukon:		
Hudson Bay Exploration & Development Co. Ltd.	504 Main St., Winnipeg, Manitoba	Kluane Lake
Canalask Nickel Mines Ltd.	100 Adelaide St. W., Toronto	Mile 1167 Alcan Highway

¹ Producing - Other firms doing development work only.



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