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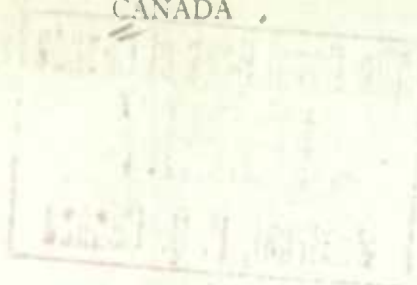
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DOMINION BUREAU OF STATISTICS—DEPARTMENT OF TRADE AND COMMERCE  
CANADA



# THE NICKEL-COPPER MINING, SMELTING AND REFINING INDUSTRY

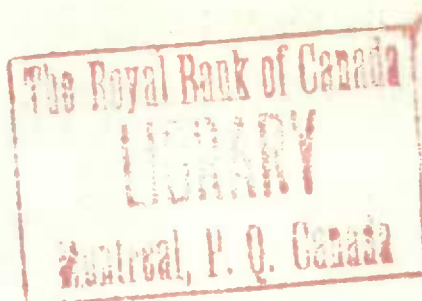
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## NOTICE

The annual reports prepared by the Industry and Merchandising Division of the Bureau of Statistics are divided into 4 volumes, as follows: **Volume I**—The Primary Industries, including mining, forestry and fisheries; **Volume II**—Manufacturing; **Volume III**—Construction; **Volume IV**—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 Non-ferrous Smelting and Refining Industry, 25¢.
- G—The Coal Mining Industry, \$1.00.
- H—The Crude Petroleum and Natural Gas Industry, 25¢.
- I—The Asbestos Mining Industry, 25¢.
- J—The Feldspar and Quartz Mining Industry, 25¢.
- K—The Gypsum Industry, 25¢.
- L—The Peat Industry, 25¢.
- M—The Salt Industry, 25¢.
- N—The Talc and Soapstone Industry, 25¢.
- O—The Miscellaneous Non-Metal Mining Industry, 25¢.
- P—The Cement Manufacturing Industry, 25¢.
- Q—The Clay and Clay Products Industry, 25¢.
- R—The Lime Industry, 25¢.
- S—The Sand and Gravel Industry, 25¢.
- T—The Stone Industry, 25¢.
- U—Contract Diamond Drilling in the Mining Industry, 25¢.

(15 Dec 52)

# THE NICKEL-COPPER MINING, SMELTING AND REFINING INDUSTRY

1951

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 addition to production of nickel, copper and the platinum metals, there is an important recovery from these ores of the associated metals — silver, gold, selenium and tellurium; sulphur for the manufacture of sulphuric acid is also salvaged in the gaseous state from waste smelter gases. The total gross value of the various primary products of this industry, considered as a whole, was estimated at \$255,434,703 in 1951 compared with \$195,157,966 in 1950.

Two companies operated both mines and metallurgical plants in the Sudbury area in 1951. The International Nickel Company of Canada, Limited, operated 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.

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 International Nickel Company of Canada, Limited, is treated in plants located at Clydach, Wales; Huntington, West Virginia, U.S.A.; and at Port Colborne, Ontario and Copper Cliff, 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 1951 the International Nickel Company of Canada, Limited, shipped ores from the Garson, Creighton, Levack, Frood, and Murray mines.

In the Lynn Lake area in Manitoba, the Sherritt-Gordon Mines Ltd., continued development work on its promising deposit of nickel-copper ore.

The industry employed 18,546 persons and distributed \$64,543,280 in salaries and wages. Fuel cost \$12,823,169 and 1,021,133,888 k.w.h. of electricity were purchased for \$3,676,924. Process supplies used were valued at \$17,319,120.

TABLE 1. Principal Statistics of the Nickel-Copper Mining, Smelting and Refining Industry, 1949-1951<sup>1</sup>

	1949	1950	1951
Number of firms .....	7	5	5
Number of mines .....	11	10	11
Number of smelters .....	3	3	3
Number of copper refineries .....	1	1	1
Number of nickel refineries .....	1	1	1
Number of employees:			
Administrative and office .....	1,516	1,617	1,900
Workmen .....	12,882	13,731	16,646
<b>Total</b> .....	<b>14,398</b>	<b>15,348</b>	<b>18,546</b>
Earnings:			
Administrative and office .....	\$ 6,367,661	\$ 7,022,331	\$ 8,671,313
Workmen .....	\$ 38,289,431	\$ 42,152,287	\$ 55,871,967
<b>Total</b> .....	<b>\$ 44,657,092</b>	<b>\$ 49,174,618</b>	<b>\$ 64,543,280</b>
Fuel and purchased electricity used .....	\$ 14,342,097	\$ 14,330,174	\$ 16,500,093
Process supplies used .....	\$ 12,821,605	\$ 14,016,729	\$ 17,319,120
Estimated gross value of matte exported and Canadian refinery products <sup>2</sup> .....	\$ 172,391,089	\$ 195,157,966	\$ 255,434,703
Net value of production <sup>3</sup> .....	\$ 145,227,387	\$ 166,811,067	\$ 221,615,490

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

2. Includes value of customs material.

3. Gross value of production less cost of fuel, electricity and process supplies.

TABLE 2. Output from Nickel-Copper Mines and Smelters in Ontario, 1949-1951

	1949	1950	1951
	(Tons of 2,000 pounds)		
Ore shipped from mines .....	10,923,323	10,777,859	12,885,445
Ore treated <sup>1</sup> .....	10,919,950	10,788,506	12,870,547
Converter copper produced in Ontario from Ontario ores <sup>2</sup> .....	104,000	103,802	120,677
Nickel produced in Ontario <sup>3</sup> .....	80,101	82,816	83,070
Matte and residues exported <sup>4</sup> .....	72,392	60,399	71,963
Nickel content of matte exported .....	48,509	40,775	48,259
Copper content of matte exported .....	3,363	8,395	8,301

1. Represents the tonnage of crude ore smelted together with the tonnage of ore milled.

2. Copper content, including copper content of Ontario ores purchased, less reverts.

3. Includes nickel content of salts and oxides produced from nickel-copper ores.

4. Less a small tonnage of matte returned to Canada for retreatment.

TABLE 3. Production of Nickel<sup>1</sup> from Canadian Ores, 1942-1951

Year	Tons	Value	Year	Tons	Value
		\$			\$
1942 .....	142,606	69,998,427	1947 .....	118,626	70,650,764
1943 .....	144,009	71,675,322	1948 .....	131,740	86,904,235
1944 .....	137,299	69,204,152	1949 .....	128,639	99,173,289
1945 .....	122,565	61,982,133	1950 .....	123,659	112,104,685
1946 .....	96,062	45,385,155	1951 .....	137,903	151,269,994

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

TABLE 4. Production of Nickel<sup>1</sup>, by Months, 1950 and 1951

Month	1950	1951	Month	1950	1951
	(Tons of 2,000 pounds)			(Tons of 2,000 pounds)	
January .....	10,244	10,993	August .....	7,721	12,304
February .....	9,610	9,702	September .....	11,782	11,682
March .....	9,325	11,676	October .....	11,354	11,758
April .....	11,234	10,603	November .....	11,912	11,570
May .....	11,021	12,523	December .....	10,319	11,370
June .....	10,818	11,889			
July .....	9,379	11,828	Total .....	123,659	137,903

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

TABLE 5. Imports and Exports of Nickel, 1950 and 1951

		1950		1951	
		Quantity	Value	Quantity	Value
			\$		\$
<b>IMPORTS</b>					
Nickel and nickel-silver in ingots .....	lb.	41,886	20,811	95,543	47,862
Nickel rods for wire (90% nickel) .....	lb.	723	579	65,797	64,648
Nickel in bars and rods, strips and sheets .....	lb.	2,398,799	1,056,864	2,326,859	2,105,139
Nickel-silver bars, rods and strips .....	lb.	104,060	54,648	13,329	11,170
Nickel-chromium in bars .....	lb.	128,467	149,272	109,897	139,865
Nickel, manufactures of, not plated .....		—	336,803	—	244,111
Nickel-plated household hollow-ware .....		—	12,866	—	10,094
Nickel household hollow-ware .....		—	4,448,385	—	3,475,765
Nickel-plated ware, n.o.p. ....		—			
<b>EXPORTS</b>					
Nickel in matte or speiss .....	tons	53,090	46,423,080	57,882	60,286,680
Nickel in oxide .....	tons	1,667	1,308,141	944	802,064
Nickel, fine .....	tons	66,894	57,568,522	72,357	75,600,713



TABLE 6. Production, Consumption and Exports of Nickel, 1942-1951

Year	Production in Canada (all forms, including content in oxide and in matte exported)	Consumption of refined nickel in Canada	Exports		
			Nickel contained in matte or speiss	Nickel contained in oxide	Refined nickel
(Tons of 2,000 pounds)					
1942 .....	142,606	4,509	41,263	9,224	86,308
1943 .....	144,009	3,440	36,415	3,892	95,240
1944 .....	137,299	2,350	33,848	1,242	97,809
1945 .....	122,565	2,410	28,295	1,758	78,168
1946 .....	96,062	1,820	30,625	517	80,797
1947 .....	118,626	1,670	39,767	6,535	70,755
1948 .....	131,740	1,887	50,801	9,792	71,247
1949 .....	128,689	1,749	56,902	1,151	69,088
1950 .....	123,859	2,226	53,090	1,667	66,894
1951 .....	137,903	2,744	57,882	944	72,357

TABLE 7. World Production of Nickel, 1948-1951 (From the "Annual Report of the American Bureau of Metal Statistics")

Country	1948	1949	1950	1951
(Tons of 2,000 pounds)				
Canada <sup>1</sup> .....	131,740	128,689	123,659	137,031
New Caledonia <sup>2</sup> .....	5,381	3,716	6,944	4,700
Norway .....	—	—	—	—
United States <sup>3</sup> .....	883	790	913	756
Cuba <sup>4</sup> .....	—	—	—	—
Finland .....	—	—	—	—
Union of South Africa .....	505	626	929	1,254

1. Production in all forms from Canadian ores.

2. Nickel content of ore produced, estimated at 3.5% Ni, from which recovery in matte of 75% Ni, may be no more than 60%.

3. By-product in electrolytic refining of copper.

4. Nickel content of oxide.

TABLE 8. Total Production of New Copper, by Provinces and by Forms, 1950 and 1951

	1950		1951	
	Tons	Value	Tons	Value
		\$		\$
By Provinces:				
Newfoundland .....	3,221	1,508,910	2,899	1,606,233
Quebec .....	72,891	34,141,997	68,866	38,151,738
Ontario .....	117,210	54,411,033	128,809	70,861,789
Manitoba .....	20,817	9,750,846	15,839	8,774,768
Saskatchewan .....	28,982	13,575,052	31,625	17,520,373
British Columbia .....	21,088	9,823,569	21,932	12,110,779
Northwest Territories .....	—	—	1	536
<b>Total</b> .....	<b>264,209</b>	<b>123,211,407</b>	<b>269,971</b>	<b>149,026,216</b>
By Forms (where computed):				
In blister and anode copper produced <sup>1</sup> .....	231,241	108,313,437	236,036	130,763,621
In ores, concentrates and copper matte exported .....	24,573	11,456,085	25,634	14,161,852
In nickel-copper matte exported .....	8,395	3,441,885	8,801	4,100,743
<b>Total</b> .....	<b>264,209</b>	<b>123,211,407</b>	<b>269,971</b>	<b>149,026,216</b>

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

TABLE 9. Production of Copper<sup>1</sup>, by Months, 1950 and 1951

Month	1950	1951	Month	1950	1951
	(tons of 2,000 pounds)			(tons of 2,000 pounds)	
January .....	22,044	22,850	August .....	21,359	22,701
February .....	22,643	20,352	September .....	20,955	21,825
March .....	22,348	24,347	October .....	22,240	20,972
April .....	22,284	23,913	November .....	23,434	22,149
May .....	22,378	23,549	December .....	22,759	22,123
June .....	20,421	22,653			
July .....	21,344	22,537	<b>Total .....</b>	<b>264,209</b>	<b>269,971</b>

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

TABLE 10. Production of Copper from Ontario Ores Only, 1942-1951

Year	Tons	Value	Year	Tons	Value
		\$			\$
1942 .....	154,141	30,625,404	1947 .....	113,933	46,018,544
1943 .....	138,920	32,232,027	1948 .....	120,383	53,384,560
1944 .....	142,654	33,845,632	1949 .....	113,043	44,658,786
1945 .....	119,725	29,771,633	1950 .....	117,210	54,411,033
1946 .....	89,712	22,502,528	1951 .....	128,809	70,861,789

Note. Almost entirely from nickel ores.

TABLE 11. Production of Copper, by Kinds of Ores and by Provinces, 1950 and 1951

Province	From copper-gold-silver ores	From nickel-copper ores	From gold and other ores	Total
	(Tons)			
<b>1950</b>				
Newfoundland .....	—	—	3,221	3,221
Quebec .....	72,627	—	264	72,891
Ontario .....	—	117,197	13	117,210
Manitoba .....	20,817	—	—	20,817
Saskatchewan .....	28,982	—	—	28,982
British Columbia .....	20,165	—	923	21,088
<b>Canada .....</b>	<b>142,591</b>	<b>117,197</b>	<b>4,421</b>	<b>264,209</b>
<b>1951</b>				
Newfoundland .....	—	—	2,899	2,899
Quebec .....	68,064	—	802	68,866
Ontario .....	—	128,640	169	128,809
Manitoba .....	15,839	—	—	15,839
Saskatchewan .....	31,625	—	—	31,625
British Columbia .....	13,287	—	8,645	21,932
Northwest Territories .....	—	—	1	1
<b>Canada .....</b>	<b>128,815</b>	<b>128,640</b>	<b>12,516</b>	<b>269,971</b>

TABLE 12. Production of Refined Copper, 1942-1951

Year	Tons	Year	Tons
1942 .....	268,447	1947 .....	202,427
1943 .....	251,495	1948 .....	221,275
1944 .....	256,244	1949 .....	226,083
1945 .....	228,861	1950 .....	238,204
1946 .....	167,221	1951 .....	245,466

TABLE 13. Production of Refined Copper, by Months, 1950 and 1951

Month	1950	1951	Month	1950	1951
	(Tons)			(Tons)	
January .....	19,434	20,870	August .....	19,922	21,740
February .....	18,599	18,342	September .....	18,782	18,624
March .....	21,902	20,564	October .....	20,832	21,260
April .....	19,487	20,347	November .....	19,191	19,195
May .....	21,145	22,731	December .....	19,825	20,336
June .....	21,424	21,315			
July .....	17,661	20,142	Total .....	238,204	245,466

TABLE 14. Imports and Exports of Copper, 1950 and 1951

	1950		1951	
	Quantity	\$	Quantity	\$
<b>IMPORTS</b>				
Copper in blocks, pigs and ingots .....	lb.	244,800	60,844	3,021,700
Copper, scrap .....	lb.	924,700	205,732	2,528,200
Copper in bars or rods for the manufacture of trolley, telegraph and telephone wires, electric wires and electric cables .....	lb.	3,252,900	730,208	2,841,700
Copper bars or rods, n.o.p. ....	lb.	70,200	37,922	192,600
Copper in strips, sheets or plates .....	lb.	293,400	140,150	760,500
Copper tubing, not manufactured .....	lb.	452,000	295,748	1,302,400
Copper rollers for wall paper .....		—	144,340	—
Copper wire, n.o.p. ....	lb.	225,751	82,825	282,164
Copper wire cloth, woven .....		—	8,163	—
Copper manufactures, n.o.p. ....		—	665,166	—
Copper sub-acetate .....	lb.	600	214	800
Copper sulphate (blue vitriol) .....	lb.	1,416,689	115,902	74,731
Total .....	—	2,487,214	—	4,069,539
<b>EXPORTS</b>				
Copper, fine, contained in ore, matte, regulus, etc. ....	tons	32,299	12,919,680	36,853
Copper, old and scrap, slag skimmings .....	tons	6,234	2,894,616	994
Copper in ingots, bars, cakes, slabs and billets .....	tons	134,244	59,665,730	101,832
Copper in rods, strips, sheets and plates .....	tons	15,262	7,510,151	12,418
Copper tubing .....	lb.	1,359,600	520,456	1,745,300
Copper wire and cable, insulated .....		—	2,669,022	—
Copper wire, bare .....		—	1,350,165	—
Copper wire, screen .....		—	14,492	—
Copper manufactures, n.o.p. ....		—	42,764	—
Total .....	—	87,587,076	—	87,188,071

TABLE 15. Production of Primary Copper, Exports and Imports, 1942-1951

Year	Production in Canada <sup>1</sup>	Exports			Imports refined copper
		Copper in ore, matte, etc.	Blister copper	Refined copper ingots, bars, etc.	
(Tons of 2,000 pounds)					
1942	301,831	34,047	6,455	98,617	—
1943	287,595	36,210	4,274	64,333	—
1944	273,535	27,989	—	135,233	2
1945	237,457	19,295	—	129,349	—
1946	183,968	17,628	—	101,414	—
1947	225,861	29,094	—	87,478	—
1948	240,732	28,556	—	116,169	—
1949	263,457	37,057	—	127,160	9
1950	264,209	32,299	—	134,244	122
1951	269,971	36,653	—	101,832	1,511

1. Blister copper plus recoverable copper in matte and concentrates exported.



TABLE 16. Production of Refined Copper, Consumption, Imports and Exports, 1942-1951

Year	Production in Canada	Domestic consumption	Exports	Imports	Stocks at end of period
(Tons of 2,000 pounds)					
1942	266,447	183,000	98,617	—	21,446
1943	251,405	176,000	84,333	—	27,710
1944	256,244	122,000	135,233	2	26,600
1945	228,861	90,000	129,349	—	18,760
1946	167,221	80,500	101,414	—	19,390
1947	202,425	109,210	87,476	—	10,931
1948	221,275	109,844	116,169	—	13,956
1949	226,083	100,905	127,160	9	9,844
1950	238,204	106,876	134,244	122	11,598
1951	245,466	134,174	101,832	1,511	19,590

TABLE 17. World Production of Copper by Countries of Origin of Ore<sup>1</sup>

(From the "Annual Report of The American Bureau of Metal Statistics")

Country	1948	1949	1950	1951
(Tons of 2,000 pounds)				
United States	655,198	761,904	915,446	938,133
Mexico	63,928	70,662	65,266	60,875
Canada	240,732	263,457	264,209	270,483
Newfoundland	4,550			
Cuba	17,966	19,178	22,663	21,529
Bolivia	7,293	5,593	5,185	5,347
Chile	490,597	409,055	399,867	418,572
Peru	19,917	30,819	32,992	35,974
Ecuador	523	776	580	—
<b>Total America</b>	<b>1,700,704</b>	<b>1,561,444</b>	<b>1,706,208</b>	<b>1,750,808</b>
Austria	1,082	1,429	1,808	2,026
Finland	25,713	26,811	18,993	19,517
Germany <sup>2</sup>	401	962	1,500	1,851
Italy	99	33	20	66
Norway	16,658	16,398	17,219	15,873
Spain	6,066	7,388	6,802	7,500
Sweden	16,353	17,938	17,746	15,900
Yugoslavia	44,663	41,559	47,722	39,628
Other Europe	16,800	17,000	16,600	15,000
<b>Total Europe</b>	<b>127,835</b>	<b>129,518</b>	<b>128,410</b>	<b>117,361</b>
Japan	28,353	36,090	43,345	46,625
India	6,567	7,157	7,408	7,933
Korea (South)	73	31	30	25
Turkey	12,102	11,889	12,793	17,884
Philippines	2,300	7,724	11,446	14,012
Cyprus	17,345	26,385	25,685	25,145
Other Asia	7,500	9,800	9,000	10,000
<b>Total Asia</b>	<b>74,240</b>	<b>99,076</b>	<b>110,607</b>	<b>121,624</b>
Belgian Congo	171,424	155,864	193,917	211,596
Rhodesia	234,647	289,946	314,589	349,967
South West Africa	6,616	9,514	10,678	12,161
Union of South Africa	32,300	33,060	36,755	36,364
Other Africa	900	1,300	1,750	1,500
<b>Total Africa</b>	<b>445,887</b>	<b>489,684</b>	<b>557,689</b>	<b>611,268</b>
Australia	13,793	15,080	18,710	17,708
Russia	198,400	220,500	240,000	280,000
<b>Total World as Reported</b>	<b>2,560,859</b>	<b>2,515,301</b>	<b>2,761,624</b>	<b>2,898,834</b>

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. 1946-1948 Bizonal area only; beginning 1949 Federal Republic of Germany; — beginning 1948 Soviet Zone is estimated and included under "Other Europe". Russia, Yugoslavia and to some extent countries grouped under "Other" have been estimated.



TABLE 18. Canadian Copper Ore Reserves as Officially Reported

(From the "Annual Report of the American Bureau of Metal Statistics")

	Year	Province	Ore	Average grade %	Copper content
			Short tons		Short tons
Amulet Dufault.....	1951	Quebec.....	920,887	4.93	45,400
East Sullivan.....	1951	Quebec.....	4,918,545	1.79	88,000
Falconbridge.....	1951	Ontario.....	10,116,500	1.00	191,200
Granby Consolidated (Allenby).....	1951	British Columbia.....	3,100,000	0.97	31,000
Hudson Bay.....	1951	Manitoba.....	18,102,439	3.15	570,200
International Nickel.....	1951	Ontario.....	253,704,721	—	7,693,100 <sup>1</sup>
Noranda.....	1951	Quebec.....	16,581,899	2.12	351,500
Normetal.....	1951	Quebec.....	2,434,300	2.67	65,000
Quebec.....	1951	Quebec.....	9,438,000	1.44	135,000
Sherritt-Gordon (Lynn Lake).....	1951	Manitoba.....	14,055,000	0.62	86,000
Waite Amulet "F" and "C" ore bodies.....	1951	Quebec.....	1,037,800	4.08	42,300

1. Copper-nickel content.

TABLE 19. Production of Metals of the Platinum Group from Ontario Copper-Nickel Ores, 1942-1951<sup>1</sup>

Year	Platinum <sup>2</sup>		Palladium <sup>3</sup>	
	Fine ounces	\$	Fine ounces	\$
1942.....	285,188	10,897,033	222,573	8,279,221
1943.....	219,796	8,458,681	126,004	5,233,068
1944.....	157,523	6,064,635	42,929	1,960,065
1945.....	208,234	8,017,010	458,674	18,671,074
1946.....	121,771	7,672,791	117,566	5,162,801
1947.....	94,570	5,582,467	110,332	4,387,740
1948.....	121,162	10,601,675	148,343	6,295,132
1949.....	153,691	11,595,986	182,225	8,289,063
1950.....	124,453	10,246,215	148,741	7,578,144
1951.....	153,461	14,540,420	164,905	7,950,107

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 1943 totalled 7 ounces valued at \$270; 1944-1947, nil; 1948, 242 ounces; 1949, 93 ounces; 1950, 129 ounces and 1951, 22 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, 1942-1951

Year	Selenium		Tellurium	
	Pounds	Value	Pounds	Value
		\$		\$
1942.....	76,000	145,920	9,500	15,200
1943.....	82,000	143,500	8,600	15,050
1944.....	65,000	117,000	9,900	17,325
1945.....	168,000	322,560	—	—
1946.....	270,606	492,503	14,200	21,868
1947.....	146,406	273,779	6,169	10,796
1948.....	108,969	217,978	8,739	15,293
1949.....	86,842	178,026	8,726	15,707
1950.....	63,709	154,176	6,010	11,419
1951.....	82,409	267,005	6,301	11,594

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

## MINERAL STATISTICS OF CANADA

TABLE 21. Production of Gold and Silver from Nickel-Copper Ores, 1942-1951

Year	Gold		Silver	
	Fine ounces	Value	Fine ounces	Value <sup>1</sup>
		\$		\$
1942	70,881	2,728,148	2,238,177	943,839
1943	55,776	2,147,376	1,646,868	746,122
1944	55,286	2,128,472	1,828,978	786,461
1945	91,369	3,528,102	1,735,143	815,417
1946	51,490	1,892,257	1,205,664	1,008,538
1947	43,672	1,528,520	1,434,652	1,032,949
1948	39,752	1,391,320	1,404,338	1,053,254
1949	35,748	1,280,928	1,202,989	893,219
1950	36,264	1,379,845	1,045,106	844,655
1951	40,394	1,488,519	1,128,205	1,066,718

1. Estimated.

2. Includes 26,589 ounces of gold and 84,614 ounces of silver recovered from platinum metals concentrates in foreign plants in previous years and not previously recorded.

TABLE 22. Employees and Their Earnings in Nickel-Copper Mines, Smelters and Refineries, 1951

	Administrative and office employees				Workmen			
	Male	Female	Total	Total salaries	Male	Female	Total	Total wages
	(Number)	(Number)		\$	(Number)	(Number)		\$
Mines	703	31	734	3,674,425	9,093	4	9,097	31,300,546
Smelters and refineries	1,013	153	1,166	4,996,888	7,545	4	7,549	24,571,421
<b>Total</b>	<b>1,716</b>	<b>184</b>	<b>1,900</b>	<b>8,671,313</b>	<b>16,638</b>	<b>8</b>	<b>16,646</b>	<b>55,871,967</b>
				Administrative and office	Workmen		Total	
Total man-hours worked in 1951				4,885,422	33,072,725		37,958,147	

TABLE 23. Workmen, by Sex and Months, Entire Industry, 1950 and 1951

Month	1950		1951	
	Male	Female	Male	Female
	(Number)			
January	12,405	8	14,845	7
February	12,626	8	15,209	7
March	12,914	8	15,324	7
April	13,130	8	15,607	8
May	13,646	7	15,945	8
June	13,964	7	17,159	8
July	14,089	7	17,504	9
August	14,012	7	17,510	9
September	14,122	8	17,422	9
October	14,440	8	17,698	8
November	14,573	8	17,807	8
December	14,570	8	17,719	8
<b>Average</b>	<b>13,723</b>	<b>8</b>	<b>16,638</b>	<b>8</b>

TABLE 24. Workmen, by Months, in Nickel-Copper Mines Only<sup>1</sup>, 1950 and 1951

Month	1950					1951				
	Mine			Mill	Total	Mine			Mill	Total
	Surface		Underground	Male		Surface		Underground	Male	
	Male	Female				Male	Female			
(Number)										
January	1,741	4	4,387	218	6,350	1,852	3	5,831	261	7,947
February	1,800	4	4,551	227	6,582	1,905	3	6,015	330	8,253
March	1,832	4	4,686	231	6,753	1,927	3	6,089	342	8,361
April	1,857	4	4,787	238	6,886	2,011	4	6,219	347	8,581
May	1,936	3	4,986	248	7,173	2,118	4	6,263	349	8,734
June	1,944	3	4,983	257	7,187	2,220	4	6,607	380	9,211
July	1,952	3	5,002	256	7,213	2,314	5	6,845	406	9,570
August	1,941	3	5,000	258	7,202	2,373	5	6,780	419	9,577
September	1,955	4	5,044	256	7,259	2,270	5	6,861	408	9,544
October	2,028	4	5,298	259	7,589	2,298	4	7,028	423	8,753
November	2,033	4	5,383	261	7,681	2,335	4	7,110	416	9,865
December	2,037	4	5,377	270	7,688	2,282	4	7,082	413	9,781
Average	1,921	4	4,956	248	7,129	2,162	4	6,558	373	9,097

1. Included in Table 23.

TABLE 25. Workmen, by Months, in Nickel-Copper Smelters and Refineries Only<sup>1</sup>, 1950 and 1951

Month	1950		1951		Month	1950		1951	
	Male	Female	Male	Female		Male	Female	Male	Female
	(Number)					(Number)			
January .....	6,059	4	6,901	4	August .....	6,813	4	7,938	4
February .....	6,048	4	6,959	4	September .....	6,867	4	7,883	4
March .....	6,165	4	6,984	4	October .....	6,855	4	7,857	4
April .....	6,246	4	7,030	4	November .....	6,896	4	7,946	4
May .....	6,676	4	7,215	4	December .....	6,886	4	7,942	4
June .....	6,760	4	7,952	4	Average .....	6,598	4	7,545	4
July .....	6,679	4	7,939	4					

1. Included in Table 23.

TABLE 26. Specified Taxes Paid by the Nickel-Copper Mining, Smelting and Refining Industry, 1949-1951

	1949	1950	1951
	\$	\$	\$
Dominion income tax, including tax on non-operating revenue .....	10,575,729	12,577,327	23,340,308
Dominion excess profits tax .....	—	2,789	—
Total provincial taxes .....	4,046,328	3,886,099	6,724,858
Total municipal taxes .....	486,903	553,595	718,814
Grand total taxes paid .....	15,108,960	17,019,810	30,783,980

TABLE 27. Miscellaneous Expenditures by the Nickel-Copper Mining, Smelting and Refining Industry, 1949-1951

	1949	1950	1951
	\$	\$	\$
Workmen's Compensation .....	534,016	561,751	560,910
Silicosis assessment .....	87,989	91,059	112,355
Unemployment insurance .....	270,604	338,179	434,496
Aggregate cost of all supplies purchased .....	42,787,211	47,142,159	62,443,540
Aggregate cost of plant and equipment purchased .....	133,405	798,318	2,992,706

Directory of Firms in the Nickel-Copper Mining, Smelting and Refining Industry in Canada, 1951

Name of firm	Head office address	Location of Canadian plant
<b>Ontario:</b>		
Falconbridge Nickel Mines, Ltd. <sup>1</sup> .....	21 Dundas Square, Toronto .....	Tps. of Falconbridge, McKim, Levack.
International Nickel Company of Canada, Limited <sup>1</sup> .....	Copper Cliff .....	Mines: Tps. of Levack, Snider, McKim and Garson. Smelters: Copper Cliff and Coniston.
East Rim Nickel Mines, Ltd. ....	85 Richmond St. W., Toronto .....	MacLennan twp.
Jonsmith Gold Mines Ltd. ....	357 Bay St., Toronto .....	Parkin twp.
Nickel Offsets, Ltd. ....	1202-50 King St. West, Toronto .....	Chelmsford.
<b>Manitoba:</b>		
Stearns-Gordon Mines, Ltd. ....	25 King St. West, Toronto, Ontario .....	Lynn Lake

1. Producing—Other concerns doing development work only.

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