

26-211

C.3

Published by Authority of the Rt. Hon. C. D. Howe, M.P.,  
Minister of Trade and Commerce

SEP 11 1948

**CANADA**

**DEPARTMENT OF TRADE AND COMMERCE**

**DOMINION BUREAU OF STATISTICS**

**+ + + *Census of Industry* + + +**

**MINING, METALLURGICAL & CHEMICAL STATISTICS**

---

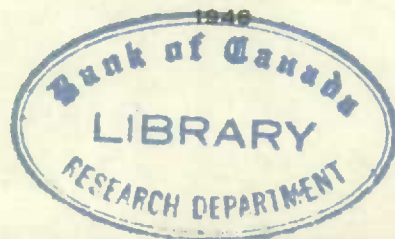
**THE**  
**NICKEL-COPPER MINING, SMELTING**  
**AND REFINING INDUSTRY**  
**IN**  
**CANADA**  
**1947**

(including data on total production of Copper  
from all types of Canadian ores)



OTTAWA

1948



Price 25 cents

SEP 11 1948

CANADA

DEPARTMENT OF TRADE AND COMMERCE

STATISTICS CANADA

General Statistics

Report on the Nickel-Copper Mining and Refining Industry

THE

NICKEL-COPPER MINING AND REFINING INDUSTRY

IN

1947

CANADA

1947

Published by the Department of Trade and Commerce, Ottawa, Ontario



Dominion Statistician:  
 Director - Division of Census of Industry and Merchandising:  
 Chief - Mining, Metallurgical and Chemical Statistics:

Herbert Marshall  
 W. H. Losee  
 H. McLeod

### THE NICKEL-COPPER MINING, SMELTING AND REFINING INDUSTRY IN CANADA, 1947

Statistics relating to the nickel-copper mining, smelting and refining industry, as shown in this report, include those pertaining to the mining of copper-nickel 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 \$153,715,083 in 1947 compared with \$88,444,103 in 1946.

Two companies operated both mines and metallurgical plants in the Sudbury area in 1946. The International Nickel Company of Canada, Limited conducts smelting operations at Copper Cliff and Coniston, Ontario, while the Falconbridge Nickel Mines, Ltd. smelt their ores at the Falconbridge mine located a few miles east of the town of Sudbury. This last-named company treats its matte in a refinery located at Kristiansand, Norway. Matte produced by the Falconbridge Nickel Mines Ltd. was treated during the war in the Canadian plants of the International Nickel Company of Canada, Limited, but shipments to Norway were resumed in July of 1945.

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; and at Port Colborne 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 1946 the International Nickel Company of Canada, Limited, shipped ore from the Garson, Creighton, Levack, Frood, Stobie and Murray mines.

In 1947 the industry, as a whole, provided employment for 12,923 persons and distributed \$31,671,028 in wages and salaries. Fuel and electricity cost \$11,806,803 and process supplies cost \$15,323,762. The industry reported an expenditure of \$1,413,606 on prospecting for new mineral deposits in 1947.

Production of copper from nickel-copper ores of Ontario totalled 113,934 tons in 1947 compared with 89,712 tons in 1946.

In 1947 a considerable tonnage of blister copper produced in Manitoba was treated at the Copper Cliff refinery of the International Nickel Company of Canada, Limited; some scrap copper was also refined at Copper Cliff.

The annual financial report of the International Nickel Company of Canada, Limited, has the following information:

"Mines and smelters operated continuously, although handicapped by an acute man-power shortage which lasted from April to October.

"Ore mined in 1947 was 10,406,644 short tons and compares with an average annual tonnage of 9,996,750 for the three preceding years.

"Underground development in 1947 totalled 54,790 feet, compared with 48,673 in 1946. This brings the total footage of underground development to 1,239,508 at the year-end.

"Proven ore reserves at the year-end stood at 221,843,000 short tons containing 7,171,000 tons of nickel-copper, compared with 217,142,000 short tons containing 6,861,000 tons of nickel-copper at the end of 1946 and 212,368,000 short tons at the end of 1938 containing 6,806,000 tons of nickel-copper.

"Completion of the new process plant at Copper Cliff was again delayed by deferred deliveries of materials and by man-power shortage. It now seems assured that the various units of this plant will be ready for operation prior to the year-end."

This report was prepared by A. R. Deir, Mining Statistician.



The following quotation is from the annual financial report of the Falconbridge Nickel Mines Ltd.:

"Production of nickel-copper matte for 1947 was approximately 45% greater than in 1946. The operating rate, increased in December, 1946, climbed until June, 1947, then declined somewhat during the summer due to a labour shortage and finally increased substantially during the last quarter. Production in December, 1947 was approximately 25% greater than in January.

"Major items of underground development during 1947 included: Drifting and cross-cutting (including slashing) 8,160 feet; stope raising (including box-holes) 3,011 feet; other raising 359 feet; station cutting 24,048 feet, and diamond test drilling 8,903 feet.

"During the year ten diamond drill holes were completed below the deepest mine workings. The ore zone was intersected at various sections and elevations down to the 4,200 level. Results obtained were decidedly encouraging with respect to grade and ore widths. The decision was made to immediately commence further depth development and, accordingly, No. 7 Shaft (internal) was located 160 ft. south of No. 5 Shaft and collared on the 2,450 level. Cross-cuts to this shaft location have been completed on the 2,625 and 2,800 levels and raising commenced."

The quotation below is taken from the annual report of the Sherritt Gordon Mines Limited, in reference to their nickel-copper Lynn Lake property:

"The situation at the present time is that in the north and central plugs we have a series of orebodies aggregating approximately 8,300 tons per vertical foot down to the 1,000' horizon. We have every reason to believe that the ore content of these plugs will continue on downward indefinitely, with new orebodies coming in to take the place of any that may die out at shallower horizons. This tonnage per foot of depth is ample to support a large-scale operation, but it will be necessary to prove continuity to greater depths before we can justify the capital expenditures necessary for the provision of rail-road and hydro-electric power facilities.

"The programme for the current year provides for continued geophysical work, followed by diamond drilling, on the south plug and in other as yet unexplored sections of the property; underground exploration of some of the known orebodies as a check on diamond drilling results and also to provide feed for the pilot mill which is being transferred from Sherridon to Lynn Lake. Further surveys in connection with the proposed power development at Granville Falls and further research work in connection with the treatment of nickel concentrate will also be carried out during the year."

Several companies participated in the exploration of nickel-copper properties in the Lynn Lake and Granville Lake areas. The names of these firms appear in the directory at the end of this publication.

Table 1 - PRINCIPAL STATISTICS OF THE NICKEL-COPPER MINING, SMELTING AND REFINING INDUSTRY IN CANADA, 1945-1947 (a)

	1945	1946	1947
Number of firms .....	4	5	18
Number of mines .....	8	14	24
Number of smelters .....	3	3	3
Number of copper refineries .....	1	1	1
Number of nickel refineries .....	1	1	1
Number of employees: Administrative ..	1,254	1,172	1,297
Workmen .....	11,502	9,009	11,826
Total .....	12,756	10,181	12,923
Salaries and wages: Salaries .....	\$ 3,603,371	\$ 3,671,894	\$ 4,564,766
Wages .....	\$ 22,889,025	\$ 18,568,777	\$ 27,106,262
Total .....	\$ 26,492,396	\$ 22,240,671	\$ 31,671,028
Fuel and purchased electricity used ...	\$ 11,329,125	\$ 8,552,300	\$ 11,808,803
Process supplies used .....	\$ 15,621,975	\$ 11,065,124	\$ 15,323,762
Estimated gross value of matte exported and Canadian refinery products (b) ..	\$ 112,780,854	\$ 88,444,103	\$ 133,715,083
Value of production (net) .....	\$ 85,791,717	\$ 68,826,679	\$ 106,582,518

(a) Does not include data for mines, power plants, etc., operated by subsidiary companies.

(b) Includes value of customs material.

Table 2 - OUTPUT FROM ONTARIO NICKEL-COPPER MINES AND SMELTERS, 1945-1947

	1945	1946	1947
	(Tons of 2,000 pounds)		
Ore shipped from mines .....	10,854,735	8,224,751	11,138,569
Ore treated (d) .....	10,865,722	8,214,834	11,147,948
Converter copper produced in Ontario from Ontario ores(a) .....	114,899	81,423	107,387
Nickel produced in Ontario (b) .....	94,832	66,074	78,746
Matte and residues exported (c) .....	41,854	47,426	58,162
Nickel content of matte exported .....	27,706	29,642	39,867
Copper content of matte exported (a) .....	5,479	8,283	6,544

(a) Copper content, including copper content of Ontario ores purchased, less reverts.

(b) Includes nickel content of salts and oxides produced from nickel-copper ores only.

(c) Less a relatively small tonnage of matte returned to Canada for retreatment.

(d) Represents the tonnage of crude ore smelted together with the tonnage of ore milled.

Table 3 - PRODUCTION OF NICKEL (\*) FROM CANADIAN ORES, 1928-1947

Year	Tons	Value	Year	Tons	Value
		\$			\$
1928 .....	48,378	22,318,907	1938 .....	105,286	53,914,494
1929 .....	55,133	27,115,461	1939 .....	113,053	50,920,305
1930 .....	51,884	24,455,133	1940 .....	122,779	59,822,591
1931 .....	32,833	15,267,453	1941 .....	141,129	68,656,795
1932 .....	15,164	7,179,862	1942 .....	142,606	69,998,427
1933 .....	41,632	20,130,480	1943 .....	144,009	71,675,322
1934 .....	64,344	32,139,425	1944 .....	137,299	69,204,152
1935 .....	69,258	35,345,103	1945 .....	122,565	61,982,133
1936 .....	84,870	43,876,525	1946 .....	96,062	45,385,155
1937 .....	112,453	59,507,176	1947 .....	118,627	70,650,764

(\*) Usually includes a relatively small quantity of nickel recovered annually from silver-cobalt ores; Canadian nickel production comes entirely from Ontario ores with the exception of 1937 when a relatively small tonnage of nickel ore was exported from a property in British Columbia.

Table 4 - PRODUCTION OF NEW NICKEL (\*) IN CANADA, BY MONTHS, 1945-1947

Month	1945	1946	1947
	(Tons of 2,000 pounds)		
January .....	11,834	7,001	9,766
February .....	10,318	6,306	8,609
March .....	11,706	7,940	10,057
April .....	10,784	9,360	10,065
May .....	11,691	7,462	9,927
June .....	11,273	7,693	9,877
July .....	11,895	8,226	9,832
August .....	10,948	7,819	9,961
September .....	8,217	8,084	7,610
October .....	8,585	8,721	11,536
November .....	7,709	8,847	9,914
December .....	7,605	8,604	11,473
TOTAL .....	122,565	96,063	118,627

(\*) Refined nickel plus recoverable nickel in matte, etc., exported.



Table 5 - IMPORTS INTO CANADA AND EXPORTS OF NICKEL, 1946 and 1947

	1946		1947	
	Quantity	Value	Quantity	Value
		\$		\$
<u>Imports</u>				
Nickel and Nickel silver in ingots .....	12,000	3,123	184,003	56,782
Nickel rods for wire (90% nickel) .....	4,427	3,141	5,230	3,522
Nickel in bars and rods, strips and sheets	2,478,109	1,276,569	2,164,014	1,135,520
Nickel-silver bars, rods and strips .....	584,371	183,742	294,638	133,129
Nickel-chromium in bars .....	125,284	114,439	104,978	86,654
Nickel, manufactures of, not plated .....	...	99,410	...	282,954
Nickel-plated household hollow-ware .....	...	2,334	...	24,703
Nickel household hollow-ware .....	...	1,844,725	...	2,865,488
Nickel-plated ware, n.o.p. ....	...	3,527,483	...	4,588,752
TOTAL NICKEL AND ITS PRODUCTS .....	...	...	...	...
<u>Exports</u>				
TOTAL METAL IN ALL FORMS .....	223,877,200	55,204,632	234,114,000	60,442,762

Table 6 - PRODUCTION IN CANADA, CONSUMPTION AND EXPORTS OF NICKEL, 1938-1947

Year	Production in Canada (all forms, including content in oxide and in matte exported)	Consumption of refined nickel in Canada (Tons of 2,000 pounds)	Exports		
			Nickel contained in matte or speiss	Nickel in oxide	Refined nickel
1938 .....	105,286	657	44,324	1,842	52,686
1939 .....	113,053	635	47,051	2,425	67,914
1940 .....	122,779	1,509	38,484	3,864	82,168
1941 .....	141,129	3,464	42,616	7,240	87,739
1942 .....	142,606	4,509	41,263	9,224	88,308
1943 .....	144,009	3,440	36,415	3,892	95,240
1944 .....	137,299	2,350	33,848	1,242	97,509
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

Table 7 - NICKEL PRODUCTION BY PRINCIPAL COUNTRIES, 1943-1947 (From the "Annual Report of the American Bureau of Metal Statistics")

	1943	1944	1945	1946	1947
	(Tons of 2,000 pounds)				
Canada (a) .....	144,009	137,299	122,585	96,062	118,116
New Caledonia (b) .....	7,110	7,411	5,490	4,200	...
Norway .....	636	583	...	...	...
United States (c) .....	640	990	1,155	352	646
Cuba (d) .....	2,700	5,100	12,000	12,391	2,220
Germany .....	1,049	...	...	...	...

(a) Production in all forms from Canadian ores.

(b) Estimated content of ore and matte exported.

(c) By-product in electrolytic refining of copper.

(d) Nickel content of oxide.

Table 8 - TOTAL PRODUCTION OF NEW COPPER IN CANADA, BY PROVINCES AND METHOD OF COMPUTATION, 1946 and 1947

	1946		1947	
	Tons	Value \$	Tons	Value \$
<b>By Provinces -</b>				
Quebec .....	34,899	8,934,105	42,560	17,356,259
Ontario .....	89,712	22,502,528	113,934	46,018,544
Manitoba .....	19,251	4,928,134	15,316	6,245,817
Saskatchewan .....	31,356	8,027,258	33,151	13,518,963
British Columbia .....	8,750	2,240,068	20,900	8,402,305
TOTAL .....	183,968	46,632,093	225,861	91,541,888
<b>By Sources (*) -</b>				
In blister and anode copper produced..	166,928	42,733,624	198,414	80,913,288
In ores, concentrates and copper matte exported (x) .....	8,758	2,241,946	20,904	8,403,752
In nickel-copper matte exported .....	8,282	1,656,523	6,543	2,224,848
TOTAL .....	183,968	46,632,093	225,861	91,541,888

(\*) Where computed.

(x) Contains a relatively small quantity of copper contained in gold and silver ores shipped to Canadian smelters.

Table 9 - PRODUCTION OF PRIMARY (\*) COPPER IN CANADA, BY MONTHS, 1945-1947

Month	1945	1946	1947
	(Tons of 2,000 pounds)		
January .....	22,049	15,734	14,360
February .....	19,825	13,559	15,039
March .....	22,819	15,950	21,324
April .....	21,340	15,725	19,855
May .....	20,452	15,284	30,566
June .....	22,049	14,992	19,281
July .....	21,060	15,292	19,608
August .....	19,614	14,768	17,928
September .....	17,398	14,225	17,478
October .....	17,477	15,046	22,530
November .....	16,018	17,471	18,930
December .....	17,356	15,922	18,962
TOTAL .....	237,457	183,968	225,861

(\*) Blister copper plus recoverable copper in concentrates, matte, etc., exported—from all types of ores.

Table 10 - PRODUCTION OF COPPER FROM ONTARIO ORES ONLY, 1928-1947

Year	Tons	Value \$	Year	Tons	Value \$
1928 .....	33,304	8,770,149	1938 .....	154,515	30,405,500
1929 .....	44,440	14,622,572	1939 .....	164,215	32,637,305
1930 .....	63,859	15,187,259	1940 .....	173,966	34,742,229
1931 .....	56,441	9,096,463	1941 .....	166,915	33,192,644
1932 .....	38,528	4,407,928	1942 .....	154,141	30,625,404
1933 .....	72,752	10,118,847	1943 .....	138,920	32,232,027
1934 .....	102,530	14,822,704	1944 .....	142,654	33,845,632
1935 .....	126,014	19,295,965	1945 .....	119,725	29,771,633
1936 .....	143,907	26,898,920	1946 .....	89,712	22,502,528
1937 .....	161,020	41,716,364	1947 .....	113,933	46,018,544

Note: Almost entirely from nickel ores.

Table 11 - PRODUCTION OF COPPER IN CANADA, ACCORDING TO ORIGIN OF ORES AND BY PROVINCES, 1946 and 1947

Table 12 - PRODUCTION OF COPPER IN CANADA, ACCORDING TO ORIGIN OF ORES AND BY PROVINCES, 1946 and 1947

Province	From copper-gold-silver ores	From nickel-copper ores	From gold and other ores	TOTAL
	(pounds)			
<u>1946</u>				
Quebec .....	68,939,908	...	857,789	69,797,697
Ontario .....	...	179,421,176	3,465	179,424,639
Manitoba .....	38,501,047	...	...	38,501,047
Saskatchewan .....	62,712,954	...	...	62,712,954
British Columbia ...	17,430,549	...	69,989	17,500,538
CANADA .....	187,584,458	179,421,176	931,247	367,936,875
<u>1947</u>				
Quebec .....	84,770,146	...	351,282	85,121,428
Ontario .....	...	227,860,515	7,098	227,867,613
Manitoba .....	30,631,768	...	...	30,631,768
Saskatchewan .....	66,301,926	...	...	66,301,926
British Columbia ...	41,766,876	...	33,482	41,800,358
CANADA .....	223,470,716	227,860,515	391,862	451,723,093

Table 12 - PRODUCTION (\*) OF REFINED COPPER IN CANADA FOR YEARS SPECIFIED

Year	Tons	Year	Tons
1916 (x) .....	483	1940 .....	261,878
1917 .....	3,901	1941 .....	278,224
1918 .....	3,809	1942 .....	268,447
1919 .....	3,467	1943 .....	251,495
1935 .....	173,290	1944 .....	256,244
1936 .....	191,595	1945 .....	228,861
1937 .....	215,080	1946 .....	167,221
1938 .....	227,240	1947 .....	202,427
1939 .....	231,684		

(\*) From all sources.

(x) First electrolytic copper produced commercially in Canada.

Table 13 - PRODUCTION OF REFINED COPPER IN CANADA, BY MONTHS, 1945-1947

Month	1945	1946	1947 (*)
		(Tons)	
January .....	20,707	14,191	13,348
February .....	18,692	13,041	11,520
March .....	20,621	13,242	13,886
April .....	19,339	15,260	16,827
May .....	20,436	14,316	18,803
June .....	21,265	13,125	18,696
July .....	19,591	14,189	19,886
August .....	19,318	13,844	18,045
September .....	18,229	14,393	17,825
October .....	19,734	14,702	18,373
November .....	15,520	14,237	18,036
December .....	15,409	12,681	17,182
TOTAL .....	228,861	167,221	202,427

(\*) Subject to revision.



Table 14 - IMPORTS AND EXPORTS OF COPPER, 1946 and 1947

	1946		1947	
	Pounds	\$	Pounds	\$
<u>Imports</u>				
Copper in blocks, pigs and ingots .....	200	55	1,100	304
Copper, scrap .....	82,500	9,358	89,900	13,682
Copper in bars or rods for the manufacture of trolley, telegraph and telephone wires, electric wires and electric cables .....	2,532,500	399,162	3,470,900	646,743
Copper bars or rods, n.o.p. ....	215,100	63,897	343,000	121,520
Copper in strips, sheets or plates .....	1,227,300	345,497	1,434,900	513,884
Copper tubing, not manufactured .....	1,245,300	435,188	1,603,100	678,287
Copper rollers for wall paper .....	...	68,702	...	32,430
Copper wire, n.o.p. ....	383,947	185,164	548,224	245,574
Copper wire cloth, woven .....	...	14,913	...	3,343
Copper manufactures, n.o.p. ....	...	615,095	...	689,844
Copper sub-acetate .....	1,142	336	1,825	596
Copper sulphate (blue vitriol) .....	1,352,750	108,965	1,279,110	132,991
TOTAL .....	...	2,246,332	...	3,079,198
<u>Exports</u>				
Copper, fine, contained in ore, matte, regulus, etc. ....	35,255,800	2,467,906	58,187,500	9,310,000
Copper, old and scrap .....	2,462,000	182,823	11,388,600	1,804,129
Copper in ingots, bars, cakes, slabs and billets .....	202,829,400	27,463,366	174,956,400	33,485,810
Copper in rods, strips, sheets, plates and tubing .....	31,836,300	4,940,721	40,967,300	8,851,207
Copper wire and cable, insulated .....	...	1,147,454	...	2,191,939
Copper wire, bare .....	...	624,708	...	3,303,809
Copper wire, screen .....	...	131,851	...	292,501
Copper manufactures, n.o.p. ....	...	45,962	...	58,644
TOTAL .....	...	37,004,791	...	59,298,039

Table 15 - PRODUCTION OF PRIMARY COPPER IN CANADA, EXPORTS AND IMPORTS, 1938-1947

Year	Production in Canada	Ex p o r t s			Imports
		Copper in ore, matte, etc.	Blister copper	Refined copper ingots, bars, etc.	Refined copper
		(Tons of 2,000 pounds)			
1938 .....	285,625	54,903	15,264	181,764	6
1939 .....	304,413	60,750	15,556	165,819	3
1940 .....	327,797	52,601	15,874	154,502	6
1941 .....	321,658	47,769	11,962	126,424	...
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	...

Note: Primary copper represents blister copper produced in Canada plus recoverable copper in ores exported.

Table 16 - PRODUCTION OF REFINED COPPER IN CANADA, CONSUMPTION, IMPORTS AND EXPORTS, 1938-1947

Year	Production in Canada	Domestic consumption	Exports	Imports	Stocks at end of period
(Tons of 2,000 pounds)					
1938 .....	227,240	54,000	181,764	6	Not available
1939 .....	231,684	57,000	165,819	3	15,418 (October 31)
1940 .....	261,878	107,000	154,502	6	17,572
1941 .....	278,224	142,000	126,424	...	18,312
1942 .....	268,447	183,000	98,617	...	21,446
1943 .....	251,495	176,000	64,333	...	27,710
1944 .....	256,244	122,000	135,233	2	26,600
1945 .....	228,861	90,000	129,349	...	16,760
1946 .....	167,221	80,500	101,414	...	19,390
1947 .....	202,425	109,210	87,478	...	10,931

Table 17 - WORLD PRODUCTION OF COPPER, 1945, 1946 and 1947, BY COUNTRIES ACCORDING TO ORIGIN OF THE ORE  
(From the "Annual Report of The American Bureau of Metal Statistics")

Country	1945	1946	1947
(Tons of 2,000 pounds)			
United States .....	805,174	603,868	874,105
Mexico .....	67,784	64,693	72,675
Canada .....	237,457	185,543	227,209
Cuba .....	9,053	12,340	14,600
Newfoundland .....	5,200	4,900	4,250
Bolivia .....	6,721	7,250	7,500
Chile .....	518,304	398,500	470,318
Peru .....	35,181	26,000	28,400
Ecuador .....	4,216	2,886	158
TOTAL AMERICA .....	1,689,090	1,305,980	1,699,215
Finland .....	16,510	19,400	19,200
Germany .....	...	16,500	...
Norway .....	5,735	13,500	15,000
Spain .....	9,100	13,400	13,500
Sweden .....	16,453	16,934	16,500
India, including Burma .....	6,720	7,068	6,643
Turkey .....	10,800	10,979	11,111
Cyprus .....	...	2,950	17,400
Belgian Congo .....	176,600	158,400	166,271
Rhodesia .....	215,572	204,922	218,222
Other Africa .....	27,211	30,000	36,800
TOTAL AFRICA .....	419,383	393,322	421,293
Australia .....	27,500	21,100	15,500

Table 18 - CANADIAN COPPER ORE RESERVES AS OFFICIALLY REPORTED (From American Bureau of Metal Statistics)

	Year	Province	Short tons ore	Average grade %	Short tons Copper
Amulet Dufault .....	1947	Quebec .....	1,707,280	5.52	94,200
East Sullivan .....	1947	Quebec .....	3,541,000	2.21	78,300
Falconbridge .....	1947	Ontario .....	14,188,000	0.92	130,500
Granby Consolidated (Allenby) .....	1947	British Columbia	9,042,000	1.25	113,000
Hudson Bay .....	1947	Manitoba .....	22,700,000	3.00	681,000
International Nickel .....	1947	Ontario .....	221,843,000	...	7,171,000 (*)
Noranda .....	1948	Quebec .....	20,118,125	2.18	438,600
Normetal .....	1947	Quebec .....	1,760,000	3.64	64,100
Queamont .....	1947	Quebec .....	9,431,000	1.49	140,500
Sherritt-Gordon .....	1947	Manitoba .....	1,008,000	2.60	26,200
Waite Amulet "F" and "C" orebodies..	1947	Quebec .....	54,000	2.67	1,400
Waite Amulet-Waite mine .....	..	Quebec .....	3,500	5.0	200

(\*) Copper-nickel content.



Table 19 - PRODUCTION OF METALS OF THE PLATINUM GROUP FROM ONTARIO COPPER-NICKEL ORES, 1938-1947 (c)

Year	Platinum (a)		Palladium (b)	
	Fine ounces	\$	Fine ounces	\$
1938 .....	161,326	5,196,794	130,893	3,677,342
1939 .....	148,877	5,221,712	135,402	4,199,622
1940 .....	108,464	4,239,424	91,522	3,520,746
1941 .....	124,257	4,747,860	97,432	3,396,304
1942 .....	285,188	10,897,033	222,573	8,279,221
1943 .....	219,706	8,458,681	126,004	5,233,068
1944 .....	157,523	6,064,635	42,929	1,960,085
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

(a) 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; nil since 1943.

(b) Includes other platinum metals except platinum and represents the entire Canadian production.

(c) 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.

Table 20 - PRODUCTION OF SELENIUM AND TELLURIUM FROM NICKEL-COPPER ORES, 1939-1947

Year	Selenium		Tellurium	
	Pounds	Value \$	Pounds	Value \$
1939 .....	126,930	224,539	...	...
1940 .....	136,350	260,429	3,491	5,607
1941 .....	142,498	272,171	11,453	18,394
1942 .....	76,000	145,920	9,500	15,200
1943 .....	82,000	143,500	8,800	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	10,611

Table 21 - PRODUCTION OF GOLD AND SILVER FROM NICKEL-COPPER ORES, 1939-1947

Year	Gold		Silver	
	Fine ounces	Value \$	Fine ounces	Value (\$)
1939 .....	77,094	2,786,177	2,496,632	1,010,886
1940 .....	90,863	3,498,225	2,803,052	1,072,167
1941 .....	77,960	3,001,460	2,633,815	1,007,698
1942 .....	70,861	2,728,148	2,238,177	943,839
1943 .....	55,776	2,147,376	1,648,888	746,122
1944 .....	55,286	2,128,472	1,828,978	786,461
1945 (x) .....	91,369	3,528,102	1,735,143	815,417
1946 .....	51,490	1,892,257	1,205,664	1,006,538
1947 .....	43,672	1,528,520	1,434,652	1,032,949

(\*) Estimated.

(x) 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 - TOTAL EMPLOYEES AND SALARIES AND WAGES PAID BY NICKEL-COPPER MINES, SMELTERS AND REFINERIES, 1947

	Administrative and Office Employees				Workmen			
	Male	Female	Total	Total salaries	Male	Female	Total	Total wages
	(Number)			\$	(Number)			\$
Mines .....	436	34	470	1,772,861	5,668	6	5,674	13,913,102
Smelters and refineries .....	697	130	827	2,791,905	5,949	3	5,952	13,193,160
TOTAL .....	1,133	164	1,297	4,564,766	11,617	9	11,626	27,106,262



Table 23 - WORKMEN, BY SEX AND MONTHS, ENTIRE INDUSTRY, 1945-1947

Month	1945		1946		1947	
	Male	Female	Male	Female	Male	Female
January .....	13,152	715	8,343	...	10,713	7
February .....	13,032	712	8,388	...	11,066	7
March .....	12,508	702	8,389	...	11,304	7
April .....	11,975	689	8,436	...	11,284	7
May .....	11,865	665	8,703	...	11,159	8
June .....	11,850	636	8,782	...	11,410	9
July .....	11,623	598	8,871	6	11,908	9
August .....	10,395	543	9,007	4	11,692	8
September .....	9,231	364	9,183	3	11,786	8
October .....	9,308	367	9,511	6	12,119	8
November .....	8,270	298	10,055	4	12,547	8
December .....	8,502	1	10,388	4	12,392	8
AVERAGE .....	10,977	525	9,005	4	11,617	9

Table 24 - WORKMEN, BY MONTHS, IN NICKEL-COPPER MINES ONLY, 1947 (\*)

Month	Mine			Mill
	Surface		Underground	Male
	Male	Female		
January .....	1,400	5	3,490	218
February .....	1,452	5	3,661	216
March .....	1,497	5	3,845	225
April .....	1,553	5	3,768	226
May .....	1,593	6	3,666	217
June .....	1,668	6	3,556	221
July .....	1,709	6	3,689	223
August .....	1,672	5	3,710	223
September .....	1,624	5	3,833	226
October .....	1,621	5	4,142	233
November .....	1,623	5	4,475	236
December .....	1,612	5	4,425	237
AVERAGE .....	1,588	6	3,855	225

(\*) Included in Table 23.

Table 25 - WORKMEN, BY MONTHS, IN NICKEL-COPPER SMELTERS AND REFINERIES ONLY, 1947 (\*)

Month	Male	Female	Month	Male	Female
January .....	5,605	2	July .....	6,287	3
February .....	5,737	2	August .....	6,087	3
March .....	5,737	2	September .....	6,103	3
April .....	5,737	2	October .....	6,123	3
May .....	5,685	2	November .....	6,213	3
June .....	5,965	3	December .....	6,118	3
			AVERAGE .....	5,949	3

(\*) Included in Table 23.

Table 26 - FUEL AND ELECTRICITY USED FOR LIGHT AND POWER, ENTIRE INDUSTRY, 1946 and 1947

Kind	Unit of measure	1946		1947	
		Quantity	Cost at works	Quantity	Cost at works
Bituminous coal: Canadian .....	short ton	185	1,819	57	794
Imported .....	short ton	54,720	444,282	47,778	427,709
Anthracite coal: United States..	short ton	59	884	145	2,220
Coke .....	short ton	859	11,463	1,008	14,653
Gasoline .....	Imp.gal.	123,260	31,764	166,856	50,155
Kerosene .....	Imp.gal.	2,484	523	3,219	733
Fuel oil and diesel oil .....	Imp.gal.	852,129	85,714	1,367,643	171,749
Wood .....	cord	109	737	3,058	25,186
Electricity purchased .....	K.W.H.	519,968,784	1,436,117	619,272,753	1,803,596
TOTAL .....	...	...	2,013,303	...	2,496,795
Electricity generated for own use	K.W.H.	6,769,200	...	9,427,650	...

Table 27 - FUEL AND ELECTRICITY USED FOR LIGHT AND POWER, BY MINES ONLY, 1946 and 1947 (\*)

Kind	Unit of measure	1946		1947	
		Quantity	Cost at works	Quantity	Cost at works
			\$		\$
Bituminous coal: Canadian .....	short ton	185	1,819	57	794
Imported .....	short ton	23,066	182,851	20,023	187,398
Anthracite coal: United States..	short ton	59	884	145	2,220
Coke .....	short ton	21	285	1	16
Gasoline .....	Imp.gal.	77,324	21,181	114,200	36,630
Kerosene .....	Imp.gal.	2,135	449	2,979	682
Fuel oil and diesel oil .....	Imp.gal.	741,602	78,548	1,337,586	168,243
Wood .....	cord	97	592	3,058	25,186
Electricity purchased .....	K.W.H.	123,253,197	389,326	165,726,517	561,478
TOTAL .....	...	...	675,935	...	982,647

(\*) Included in Table 26.

Table 28 - FUEL AND ELECTRICITY USED FOR METALLURGICAL PURPOSES, ENTIRE INDUSTRY, 1946 and 1947

Kind	Unit of measure	1946		1947	
		Quantity	Cost at works	Quantity	Cost at works
			\$		\$
Bituminous coal: Imported ...	short ton	390,238	3,229,728	547,177	4,747,832
Charcoal .....	pound	944,410	18,733	956,475	22,761
Coke .....	short ton	147,291	1,947,884	202,715	2,846,437
Gasoline .....	Imp.gal.	34,561	12,158	43,968	9,745
Kerosene .....	Imp.gal.	5,967	1,257	4,687	1,041
Fuel oil and diesel oil .....	Imp.gal.	11,734,655	737,755	14,627,863	1,043,059
Wood .....	cord	131	1,369	220	1,942
Gas: Natural .....	M cu.ft.	422	321	439	374
Electricity purchased .....	K.W.H.	175,256,777	589,792	205,171,414	638,817
TOTAL .....	...	...	6,538,997	...	9,312,008

Table 29 - POWER EQUIPMENT (INCLUDING STAND-BY OR EMERGENCY EQUIPMENT) ENTIRE INDUSTRY, 1947

Description	Ordinarily in Use		In Reserve or Idle	
	Number of units	Total horse power	Number of units	Total horse power
Steam engines .....	20	920	4	2,829
Steam turbines .....	1	3,350	...	...
Diesel engines .....	5	700	...	...
Gasoline, gas and oil engines, other than Diesel engines .....	11	140	4	80
Electric motors (except motor-generator sets)				
(a) Operated by purchased power .....	4,655	162,846	358	20,488
TOTAL .....	4,692	167,956	366	23,397
(b) Operated by above primary units .....	380	5,155	43	1,710
Stationary power boilers .....	24	9,090	8	1,005
Motor-generator sets .....	149	72,251	23	13,257

Table 30 - SPECIFIED TAXES PAID BY THE NICKEL-COPPER MINING, SMELTING AND REFINING INDUSTRY, 1946 and 1947 (\*)

	1946	1947
	\$	\$
Dominion income tax, including tax on non-operating revenue	3,889,895	6,211,428
Dominion excess profits tax .....	4,813,071	1,794,641
Total provincial taxes .....	761,769	2,139,212
Total municipal taxes .....	314,068	375,041
GRAND TOTAL TAXES PAID .....	9,778,801	10,520,322

(\*) Includes data relating only to companies which conducted both mining and smelting operations.



Table 31 - MISCELLANEOUS EXPENDITURES BY THE NICKEL-COPPER MINING, SMELTING AND REFINING INDUSTRY,  
1945 - 1947

	1945	1946	1947
	\$	\$	\$
Workmen's compensation .....	337,219	319,020	455,173
Silicosis assessment .....	71,740	61,708	47,673
Unemployment insurance .....	157,917	127,657	152,728
Aggregate cost of all supplies purchased .....	24,639,521	17,557,372	32,488,891
Aggregate cost of plant and equipment purchased	2,497,049	2,904,456	349,734

DIRECTORYFIRMS IN THE NICKEL-COPPER MINING, SMELTING AND REFINING INDUSTRY IN CANADA, 1947Note: (\*) Producing

Name of Firm	Head Office Address	Location of Canadian Plant
<u>Ontario -</u>		
Falconbridge Nickel Mines, Ltd. (*)	21 Dundas Square, Toronto	Falconbridge Tp.
International Nickel Company of Canada, Limited (*)	Copper Cliff	Mines: Tps. of Levack, Snider, McKim and Garson Smelters: Copper Cliff and Coniston Nickel refinery: Port Colborne Copper refinery: Copper Cliff Foy Tp. Bowell Tp. Moose Lake
Nickel Offsets Ltd.	Room 1701, 372 Bay St., Toronto	
North Range Nickel Mines Ltd.	suite 501, 67 Yonge St., Toronto	
Ontario Nickel Mines Ltd.	Room 305, 350 Bay St., Toronto	
<u>Manitoba -</u>		
Baker Lake Explorations Ltd.	45 Richmond St. W., Toronto	Eldon Lake
Barrington Lake Copper Mines	1608 Star Bldg., Toronto	Hughes River
Cheskirk Mines Ltd.	301, 100 Adelaide St. W., Toronto	Lynn Lake
Denison Nickel Mines Ltd.	62 Richmond St. W., Toronto	Lynn Lake
Falconbridge Nickel Mines Ltd.	21 Dundas Square, Toronto	Lynn Lake
Granville Lake Nickel Mines Ltd.	209, 330 Bay St., Toronto	Lynn Lake
Hoodoo Lake Mines Ltd.	504, 357 Bay St., Toronto	Berge Lake
International Nickel Company of Canada, Limited	Copper Cliff, Ontario	Granville Lake
Lynbar Mines Ltd.	1006 Concourse Bldg., Toronto	Granville Lake
Lynwatin Nickel Copper Ltd.	1001 Federal Bldg., Toronto	Lynn Lake
Nickel Lake Mines Ltd.	395 Main St., Winnipeg	Barrington Lake
Nicoba Mines Ltd.	1001 Federal Bldg., Toronto	Lynn Lake
Norancon Exploration Ltd.	1600 Royal Bank Bldg., Toronto	Black Trout Lake
Noranda Mines Ltd.	1600 Royal Bank Bldg., Toronto	Lynn Lake
Sherritt Gordon Mines Ltd.	25 King St. W., Toronto	Lynn Lake
Transcontinental Resources Ltd.	3100, 25 King St. W., Toronto	Granville Lake

- - - - -





STATISTICS CANADA LIBRARY  
BIBLIOTHÈQUE STATISTIQUE CANADA



1010632531