Subsection 5.-Nickel.

With the exception of the nickel in the ores shipped from the Cobalt district, the Canadian production of nickel is derived entirely from the well-known nickel-copper deposits of the Sudbury district, Ontario. A brief description of the history and development of the nickel-copper mining industry will be found under copper in Subsection 3 of this section. From 830,477 lb. in 1889 the production of nickel increased continually to a war-time peak of 92,507,293 lb. in 1918. After a slump to 19,293,060 lb. and 17,597,123 lb. in 1921 and 1922 respectively there was an increase to 73,857,114 lb. in 1925. In 1928 production at 96,755,578 lb. exceeded that of the war year 1918, while 1929 established a record at 110,275,912 lb. Preliminary figures for production in 1931 are 65,666,320 lb.

In recent years the producing companies have instituted extensive researches to discover and encourage new peace-time uses for the metal. The success attending their efforts in that direction accounted very largely for the marked increase in production during the past few years. The automobile industry, electrical machinery, cooking utensils, new submarine cables and various nickel alloys all helped to absorb this increased production.

Sudbury.—The nickel-bearing rocks of the Sudbury district, with a width of about two and one-half miles, form a wide ellipse 36 miles long and 13 miles broad. The ores consist mainly of a mixture of pyrrhotite and chalcopyrite associated with norite, a basic intrusive rock. The nickel occurs in the pyrrhotite as pentlandite and varies somewhat in amount. The ore mined in the district varies considerably in richness, the average metal content being about 2 to 4 p.c. of nickel, 1 to 3 p.c. of copper and 45 p.c. iron, although portions of the new Frood deposit are much richer than this, especially in copper. Cobalt, gold, silver, platinum and palladium are nearly always present in very small quantities.

World Production.—The world production of nickel was about 59,360 short tons in 1930, of which output $87 \cdot 4 \text{ p.c.}^1$ was Canadian in origin, while the remainder was derived from New Caledonia, India and Norway. The proved deposits of nickel ore in Canada are estimated to be sufficient to provide for the world's requirements for many years, while there are still large reserves undeveloped.

16.—Quantities and Values' of Nickel Produced in Canada during the calendar years 1991-31.

Quantity.	Value.	Year.	Quantity.	Value.	Year.	Quantity.	Value.
lb,	\$		1b.	\$		1b.	*
9,189,047 10,693,410 12,505,510 10,547,883 18,876,316 21,490,955 21,189,793 19,143,111 26,282,991	5,025,903 5,002,204 4,219,153 7,550,526 8,948,834 9,535,407 8,231,538 9,461,877	1912 1913 1914 1915 1916 1916 1917 1918 1919	44,841,542 49,676,772 45,517,937 68,308,657 82,958,564 82,330,280 92,507,293 44,544,683	13,452,463 14,903,032 13,655,381 20,492,597 29,035,498 33,732,112 37,002,917 17,817,953	1922 1923 1924 1925 1926 1926 1927 1928 1928	19,293,060 17,597,123 62,453,843 69,536,350 73,857,114 65,714,294 66,796,717 96,755,578 110,275,912	6,158,993 18,332,077 12,126,739 15,946,672 14,374,163 15,262,171 22,318,907 27,115,461
	lb. 9, 189, 047 10, 693, 410 12, 505, 510 10, 547, 883 18, 876, 316 21, 490, 935 21, 189, 793 19, 143, 111	Ib. \$ 0, 189, 047 4, 594, 523 10, 693, 410 5, 025, 903 12, 506, 510 5, 002, 294 10, 547, 853 4, 219, 153 18, 876, 316 7, 550, 526 21, 490, 955 8, 948, 834, 407 21, 490, 955 8, 948, 834, 407 21, 480, 733 9, 535, 407 19, 143, 111 8, 231, 538 26, 282, 091 9, 461, 877	Ib. \$ 0,189,047 4,594,523 1911 10,693,410 5,025,903 1912 12,505,510 5,002,204,1913 101 10,547,853 4,219,153 1914 18,876,8316 7,550,526 1915 21,490,955 8,948,834 1916 21,489,793 9,535,407 1917 10,143,111 8,231,538 1918 26,282,909 9,461,877 1919	Ib. 5 Ib. 9, 189, 047 4, 594, 523 1911 .34, 098, 744 10, 693, 410 5, 025, 903 1912 .44, 841, 542 12, 505, 510 5, 002, 204, 1913 .49, 676, 772 10, 547, 853 4, 219, 153, 1914 .45, 517, 937 18, 876, 816 7, 550, 526, 1915 .68, 308, 857 21, 490, 955 8, 948, 834 1916 82, 958, 554 21, 180, 703 9, 532, 407, 1917 .82, 330, 280 19. 44, 111 26, 282, 091 9, 461, 877, 1919 .44, 5444, 883	b. s b. s 0,189,047 4,594,523 1911 34,096,744 10,229,623 10,693,410 5,025,903 1912 44,841,542 13,452,463 12,505,510 5,002,204,1913 49,676,772 14,902,032 14,95,157,937 18,876,8316 7,550,526 1915 68,308,687 29,035,548 32,056,554 21,490,955 8,948,834 1916 82,958,554 29,035,249 32,732,112 18,876,8316 7,850,526 1915 68,308,687 29,035,498 21,190,955 33,732,112 19,189,793 9,438,477 1918 92,507,223 37,702,112 19,25,377,1919 44,544,853 17,817,853	Ib. \$ 1b. \$ 0, 189, 047 4, 594, 523 10, 699, 410 \$, 025, 903 10, 699, 410 \$, 025, 903 10, 699, 410 \$, 022, 904 10, 547, 823 4, 191 12, 505, 510 5, 002, 204 10, 547, 823 4, 219, 153 18, 876, 816 7, 550, 526 18, 876, 816 7, 550, 526 19, 497, 987 13, 655, 381 18, 876, 816 7, 550, 526 19, 497, 987 13, 655, 381 19, 497, 987 13, 655, 381 19, 41, 911 82, 330, 280 19, 498, 798 9, 438, 344 19, 192, 20, 202 37, 002, 917 19, 143, 111 8, 231, 538 19, 243, 111 8, 231, 538 19, 243, 211 192, 2507 20, 282, 192 9, 461, 377 19, 243, 111 8, 231, 538 21, 80, 793 9, 451, 377 21, 80, 793 9, 451, 377 22, 292, 507 203 21, 227, 71919, 9, 419, 277	b. s lb. s lb. 0, 189, 047 4, 594, 523 1911 34, 098, 744 10, 229, 623 1921 19, 293, 060 0, 699, 410 5, 025, 903 1912 44, 841, 542 13, 452, 463 1922 17, 597, 123 12, 505, 510 5, 002, 204, 1913 49, 676, 772 14, 903, 032 1924 49, 536, 380 10, 547, 853 4, 219, 153 194 45, 517, 797 13, 655, 381 (1924) 49, 536, 380 18, 876, 316 7, 550, 526 1915 68, 308, 857 20, 492, 597 (1925) 73, 857, 114 21, 490, 955 8, 948, 834 1916 82, 958, 564 29, 035, 498 1924 49, 957, 142, 294 21, 490, 955 9, 635, 407 (1917, 82, 330, 280) 33, 732, 112 (1927, 66, 792, 717, 927) 13, 697, 714, 294 21, 490, 955 9, 535, 407 (1917, 82, 330, 280) 33, 732, 112 (1927, 66, 799, 717, 719, 719, 719, 719, 719, 719

Nore.-For figures for the years 1839-1900, see 1929 Year Book, p. 368.

⁴ A change in the method of computing the value of nickel produced accounts for the drop in value after 1923. ² Preliminary figures.

¹ These figures, taken from the Imperial Institute's Statistical Summary, include some nickel produced in the U.S. as a by-product from the electrolytic refining of Canadian copper; such nickel is not included in Table 16.