Bibliography of Nickel

GEOLOGICAL SURVEY BULLETIN 1019-K

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By ETHEL M. PRATT *and* HENRY R. CORNWALL

CONTRIBUTIONS TO BIBLIOGRAPHY OF MINERAL RESOURCES

GEOLOGICAL SURVEY BULLETIN 1019-K

Contains references, to June 1956, on the geology, ore deposits, history, economics, and metallurgy of nickel

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ABSTRACT

This bibliography of nickel includes articles and books on nickel and represents references available to the authors in Washington, D. C. References are listed by author, location, and subject. Coverage is probably most nearly complete for publications on the geology and ore deposits of nickel, but an attempt was also made to include all available references on the history, economics, metallurgy, and other aspects of the nickel industry.

INTRODUCTION

Nickel is found in nature mainly in hydrothermal or magmatic sulfide deposits and in the lateritic mantle developed by the weathering of peridotite. In the sulfide deposits nickel occurs as pentlandite $(Fe, Ni)_9S_8$, associated with pyrrhotite, Fe_nS_{n+1}, and chalcopyrite, $CuFeS_2$. Nickel also occurs in minor amounts in the following sulfides: Polydymite, millerite, siegenite, bravoite, and violarite. Nickel is also found combined with arsenic in niccolite, skutterudite, chloanthite, gersdorffite, and annabergite; it is combined with antimony in breithauptite and ullmannite. The largest and richest sulfide deposits of nickel are those being mined in the Sudbury district, Ontario, Canada.

Vast nickeliferous laterites are located in Cuba, New Caledonia, Indonesia, and the Philippines. Most of the laterite in Cuba, the Philippines, and Indonesia is of the nickeliferous iron type; the mode of occurrence of nickel in these deposits has not been determined. The laterite of New Caledonia and part of that in Indonesia, as well as smaller deposits in Venezuela and Oregon, are of the nickel silicate type in which nickel occurs as the hydrous silicate garnierite, the composition of which is variable.

Nickel was used as a coinage metal in very old times. As an alloy it has wide use for utensils, hospital apparatus, surgical instruments,

and monel metal. Pure nickel is now also used for domestic appliances and for laboratory equipment. Having great tensile strength and toughness, it is widely employed in the manufacture of steel—it is popular because of its corrosion resistance. Certain nickel alloys are used as electrical resistance wires, because of low conductivity. The salts of nickel are used in nickel-plating baths and to some extent in ceramics as a coloring agent.

References marked by an asterisk (*) are out of print, but they can be seen at many public and university libraries. Open-file reports and maps can be seen at the Geological Survey Library, Room 1033, General Services Building, Washington, D. C., and at various field offices whose addresses can be obtained by writing to the Geological Survey.

U. S. Bureau of Mines book publications can be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Reports of Investigations and Information Circulars can be obtained free from the Bureau of Mines Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pa.

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