Bibliography of Titanium Deposits of the World

GEOLOGICAL SURVEY BULLETIN 1019-G
Bibliography of Titanium Deposits of the World

By ROBERT LAWTHERS and HELEN R. MARK

CONTRIBUTIONS TO BIBLIOGRAPHY OF MINERAL RESOURCES

GEOLOGICAL SURVEY BULLETIN 1019-G

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Thomas B. Nolan, Director
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INTRODUCTION

Since early 1951, when the U.S. Geological Survey issued Circular 87, "Bibliography on titanium," by J. R. Carpenter and G. W. Luttrell, the titanium industry has continued to expand. Not only has the production of titanium metal advanced from the experimental stages to become a new and important industry, but the production of titanium pigments has increased. As a result of this expansion, new sources of titanium ore have been developed. This bibliography has been prepared, therefore, to fulfill the need for a comprehensive, up-to-date compilation of the literature on raw materials used by this important industry.

The preparation of the bibliography was facilitated by consulting references given in Circular 87, and by using articles obtained during the senior author's studies of the worldwide resources of titanium (manuscript in preparation).

The authors acknowledge with thanks the assistance given by A. P. Cerkel during initial phases of the compilation.

EXPLANATION OF THE BIBLIOGRAPHY

This bibliography contains about 600 references selected to provide information on the resources and utilization of titanium deposits; it includes articles on the geology, resources, exploration, mining methods, and beneficiation of deposits. Because some general background information is necessary for a proper evaluation and understanding of the economics of titanium, a few articles are included on the mineralogy of titanium minerals, the geology of rocks in which titanium deposits occur, and the petrology and geochemistry of mineral assemblages that are common to both titaniferous and other deposits.

The utilization of a deposit depends, in part, on mining and ore-dressing techniques, hence articles on these subjects relevant to certain deposits are included.

Production and consumption statistics, information on uses of titanium
compounds, methods of producing metal and pigments, and other data on various phases of the titanium industry are of secondary importance in this bibliography. Such material has been treated comprehensively in other reports. (See, for example, Archer and Gibson, 1953; Brophy, Archer, and Gibson, 1952; and DuMont, 1947).

The bibliography has been compiled from domestic and foreign publications available through December 31, 1955, in libraries in the Washington, D.C., area. Most of the entries were obtained from publications in the U. S. Geological Survey Library and the Central Library of the Department of the Interior.

Individual references are given in the language that appears on the title page of the publication. Exceptions are references by Japanese and Chinese publications, which are given in English. A translation, within the citation, of the title and publication of some foreign entries, particularly Russian, is inclosed in brackets. In some instances brief notes have been added at the end of the citation, and where there were no titles, brief bracketed titles have been supplied.

Much information published as short articles in the “current events” sections of technical journals is of interest only for a short time. However, all such articles that contain material believed to be of permanent value have been included in the bibliography.

Annual summaries of developments in the titanium industry appear in many technical journals and publications of State and Federal geological surveys and mining bureaus. Although many of these reports give excellent annual summaries, the references included in this bibliography are those which contain information on titanium deposits that has not been published elsewhere. Exceptions are the issues of the Minerals Yearbook from 1940 to the present, which are included because they provide excellent summaries of the years of greatest development of the domestic titanium industry. The annual volumes of the Minerals Yearbook have been published for the years 1932–33 to the present by the U.S. Bureau of Mines. They were preceded by the annual volumes of the Mineral Resources of the United States, issued for the years 1924 through 1931 by the Bureau of Mines, and from 1882 through 1923 by the U. S. Geological Survey.

The references in this bibliography are listed by authors in alphabetical order; those by anonymous authors are at the end. All citations are cross-indexed, and the index is subdivided to include such topics as location of deposit, geology, resources, mineralogy, petrology, and mining activities. Information pertaining to production, consumption, trade statistics, metal technology, uses of titanium products, and related subjects is not indexed completely, because the principal purpose of the bibliography is to provide references on deposits of titanium.
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<td>Goodwin, W. M. 1953</td>
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