

**A TEXT-BOOK OF MINING  
GEOLOGY FOR  
THE USE OF MINING  
STUDENTS AND MINERS**

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A Text-Book of Mining Geology for the Use of Mining Students and Miners by James Park

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**MINING GEOLOGY.**

FOR THE USE OF MINING STUDENTS  
AND MINERS.

BY

**JAMES PARK,**

PROFESSOR OF MINING AND MINING GEOLOGY;  
DIRECTOR OF OTAGO UNIVERSITY SCHOOL OF MINES;  
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MEMBER OF THE AMERICAN INSTITUTE OF MINING ENGINEERS;  
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INSTITUTE OF MINING ENGINEERS.

With 78 Illustrations and 3 Plates.



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## PREFACE.

It is only in recent years that Mining Geology has been regarded as of sufficient importance to warrant its elevation to the dignity of a distinct department in the Mining Schools and Colleges of English-speaking communities. For long enough it was treated as a subordinate subject, being taught for the most part as an introduction to the principles of mining, at a time in his academic career when the young undergraduate, possessing no personal experience of ore-bodies as they occur in Nature, was least able to grasp the true bearing of the subject in its relation to the economics of the mining industry. In the mining academies of Continental Europe, economic geology has always occupied a prominent and respected place.

The matter in the following pages comprises a series of lectures issued in Bulletin form at the end of 1902. The exhaustion of that little publication has encouraged the author to present the same matter in this revised and enlarged form.

The new chapters on "Ores and Minerals Considered Economically," "Mine-Sampling and Ore-Valuation," and "The Examination and Valuation of Mines" have been added to comply with the requirements of the new curriculum for the associate-diplomas in Mining, Metallurgy, and Geology.

The genesis of ore-deposits is a subject surrounded by many perplexing problems. The chief difficulty encountered by the teacher is that the generalisations have not yet been crystallised in forms sufficiently definite to be universally accepted as first principles.

The publication of the late Professor Posepny's classic paper on *The Genesis of Ore-Deposits* in 1888 may be said to



have marked the beginning of a new era in the history of economic geology. Since that date the literature of the subject has been enriched by the writings of Vogt, Stelzner, Beck, de Launay, Van Hise, Rickard, Becker, Emmons, Gregory, Kemp, Chamberlain, Lindgren, Weed, Spurr, Sir C. Le Neve Foster, S. Herbert Cox, Grenville Cole, and other distinguished geologists.

The American School has not endorsed the extreme views of Posepny, or the fascinating theories of Sandberger, but gradually developed a conception lying somewhere between the two, with a distinct leaning towards the teachings of the former.

With respect to Mine Sampling and Valuation, it is manifest that no hard and fast rules can be laid down. Of American, English, and German mining engineers with whom the author has been associated in mine examination, it is noteworthy that all were agreed as to the prime essentials, although differing within certain small limits in matters of procedure and routine. Differences in minor details must always exist where men vary in experience and temperament.

Students reading for advanced work and honours will find a fertile field of reference in such excellent works as *The Genesis of Ore-Deposits*, published by the American Institute of Mining Engineers; the treatises on Ore-Deposits by Stelzner, Beck, Phillips, and Louis; *The Sampling and Valuation of Mines*, by Rickard; the splendid Memoirs and Reports of the Geological Survey of the United States; and the valuable papers scattered through the Transactions of the American Institute of Mining Engineers, of the Institution of Mining Engineers, of the Institution of Mining and Metallurgy, and of the New Zealand Institute of Mining Engineers. The acknowledgments of the author are due to the writers of these papers and to friends in many places for much valuable assistance in the preparation of these pages.

THE AUTHOR.

UNIVERSITY, DUNEDIN, N.Z.,  
March 1906.

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