

and is increasing rapidly, as the cost of extraction is being lowered by improved methods. At the same time, it is necessary for the economical working of a cyanide plant to thoroughly understand the chemistry of the extraction and subsequent precipitation of the gold and silver; as also the interference of some of the base metals, which will occur in the ore under treatment. In order to work to the best advantage, the solution in the tanks, etc., before, during, and after the extraction from the ore, must be analyzed to determine accurately its composition, viz., active cyanogen, alkalis, reducing agents, auxiliary agents, etc.

The book appears to meet a long-existing requirement, as it concisely and clearly compares the best standard methods known for the analysis of the solutions, and gives valuable data as to their worth, also offering some new methods, with discussions as to their advantages. It is well-filled with equations, showing the various reactions, thus greatly increasing its value from the chemists' standpoint. It comprises chapters on the Ingredients and Analysis of Cyanide Solutions, to wit, Active Cyanogen Compounds; Alkaline Constituents; Reducing Agents as Sulphides, etc.; Auxiliary Agents, as for example Oxygen, the value of which as an aid, and in fact a necessity, to cheap extraction is well understood; Inactive Bodies, as the Chlorides, Sulphates, Silicates, etc.; The Noble Metals; Base Metals; and the Various Solids in Suspension and Solution.

This manual will prove a most timely aid to chemists, who are engaged in that line of analysis, as it shows great care and thoroughness in its selection of subjects, discarding the valueless and condensing proved and accurate methods, so that they can be grasped quickly and followed up without the loss of time, caused by the reading through of large quantities of unprofitable matter in order to obtain the kernel. In fact this book is a valuable addition to any library on the same subject. The print and paper are excellent; qualities, unfortunately, too often lacking.

A Manual of Mining.

By M. C. Ihlseng, C.E., E.M., Ph. D., and Eugene B. Wilson, M.E., New York: John Wiley & Sons. London: Chapman & Hall, Ltd. Pages, 723; illustrated. 337 figures. Price, \$5.

The contents of this recently-published, interesting volume are based on a course of lectures on mining delivered at the school of mines of the State of Colorado, by Mr. M. C. Ihlseng, formerly dean of the school of mines of the Pennsylvania State college, and in his work he has been assisted by Mr. Eugene B. Wilson, a well-known mining and metallurgical engineer. The present issue is practically the fourth edition, but the previous editions received only such additions and changes as were necessary in its use as a text-book in mining schools. The author, however, in the edition under review presents a complete revision of the work, which now assumes the form of a collaboration by Mr. Wilson, who brings to the original work a wide range of experience and ability, an accuracy of detail, and a discrimination in description, contributing highly to the value of the revision. Originally planned for metal mining, the first issue of the book gave small place to coal and its extraction. The new edition has, of necessity, been enlarged to include coal mining in all its phases, with full descriptions and many illustrations of modern methods and machinery. The later devices in power generation and distribution, as the steam turbines, oil and compressed-air engines, with such appliances as have proven themselves meritorious in economy and safety, are elaborately treated. The chapters upon "Electricity in its Application to the Mining Industry," prepared by Mr. Roland W. Hutchinson, whose work on "Long Distance Transmission of Electricity" has secured recognition in this field, will prove invaluable to the student.

The Mineral Industry During 1903.

The Engineering and Mining Journal, New York and London. Pages 527. Price \$5 or £10:10.

This is Vol. XII of *The Mineral Industry*, its statistics, technology and trade in the United States and other coun-

tries. It is an annual technical encyclopedia, incorporating the most recent developments and advances evolved in the mining and metallurgical world up to the time of its preparation for the press. It embraces statistics relating to the production and prices of the various minerals and metals throughout the globe, and includes, in addition, exhaustive reviews compiled by authoritative international experts on the technical progress made in the metallurgical field, together with detailed accounts of new processes. While the work on this volume has been prepared by the editorial staff of the *Engineering and Mining Journal*, it has been more particularly under the supervision of Mr. D. H. Newland, one of the associate editors of that journal. Besides articles by members of the staff there are others from 33 special contributors, most of them recognised authorities on their respective subjects.

The introductory chapter reviews and summarises the position generally in regard to the mineral and metal production of the United States. Twenty-seven chapters, each dealing with separate minerals or closely allied minerals, follow, these including much information relating to the subjects thus treated. The last four chapters in the volume comprise reviews of (1) the general literature on ore deposits, (2) literature on ore dressing, (3) mining progress, and (4) dividends paid and assessments levied by American mines and industrial companies.

While the delay in publication of this valuable work is to be regretted, it should be remembered that it takes much time and labour to revise statistics and bring them up to a late date, especially when they cover so extensive a field as that of a mineral production aggregating in 1903 the enormous value of \$1,670,317,995, which was the total value at the place of production of the mineral and metal output, from both domestic and foreign ores and bullion, of the United States, in the year under review.

Mineral Resources of the United States

United States Geological Survey: David T. Day, Chief of Division of Mining and Mineral Resources. Pages 1,024.

This is the twentieth annual report of the series on the Mineral Resources of the United States published by the Survey. The arrangement and scope of this volume are practically the same as in the nineteen preceding reports of the series. Each report records the development of the mineral industries of the United States since the time covered by the immediately preceding number of the series; the reports should, therefore, be consulted together.

Every chapter in this report is a census of the productive features of the industry under discussion. The statistics of the production of gold and silver were prepared in conjunction with the Director of the Mint, Treasury Department. The statistics of the imports and exports of minerals, which form an essential part of the volume, were obtained through the Chief of the Bureau of Statistics, Department of Commerce and Labour. Besides the statistics for the calendar year 1903, considerable descriptive and technical matter, obtained while the statistical canvass was in progress, is included.

The table of contents shows the arrangement of the numerous chapters, thus facilitating reference to any subject upon which information is sought. Each of the various minerals is, with few exceptions, allotted a separate chapter. A very full index completes an authoritative volume of exceptional interest and much practical usefulness.

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