

Book reviews

● *Underground operators' conference*. Parkville (Australia), Australasian Institute of Mining and Metallurgy, \$A25 (surface).

Reviewer: G.R. Still

This publication contains some thirty papers presented at the Underground Operators' Conference, which was held in Kalgoorlie during October 1985. They are grouped conveniently under eight headings based on their subject content: Shaft Sinking and Rehabilitation, Mine Development, Production Methods, Ground Support, Blasting Technology, Equipment Developments, Consumables, and Computers/Contracts/Contracting.

Having been presented at an operators' conference, the papers are essentially of a practical nature, and contain more than sufficient detail to impart a very comprehensive insight into the operation of Australian mines. Throughout, the emphasis is on the improvement of productivity and mine costs, with many tables indicating the results obtained. The diagrams are of a high standard (often isometric), and make for a clear understanding of the methods employed.

The papers on shaft sinking illustrate the results that can be obtained with a minimum labour force utilizing drilling 'jumbos' and a 'cactus' grab or 'clam-shell' for shaft cleaning.

The papers on mine development vary from trackless development in the exploration of a new copper-uranium mine to the difficulties in the re-opening and modernization of gold mines on the 'Golden Mile'.

The papers on production methods indicate the wide variety of stoping methods used in the steeply dipping orebodies that prevail in the region. One mine has used, or is planning to use, no fewer than six different mining methods. Longhole open stoping appears to be the most commonly used system, and there are a number of papers on different aspects of this stoping method. A trend with many mines is to extend the use of trackless equipment in order to realize increases in productivity.

Extensive use is made of declines both to provide access for large equipment to the orebodies and for the haulage of ore. A number of papers concentrate on aspects of truck haulage, with suggestions for future improvements and discussions of the limitations.

This volume covers most aspects of underground-mine operation, and the Australian mining industry is shown to be adopting modern methods and machines in order to increase productivity and remain viable with stable commodity prices. This theme is repeated in most of the papers presented, and the authors are to be congratulated on their standard.

This volume forms an essential addition to the library

of all mining engineers, whether they are involved in mine operation, or in the planning of new mines or extensions to existing mines.

● *Reagents in the minerals industry: A review*, edited by M.J. Jones and R. Oblatt. London, Institution of Mining and Metallurgy, 1986, £50.

Reviewer: L. Goold

This publication is a compilation of the forty papers presented at a conference on 'Reagents in the Minerals Industry', which was organized by The Institution for Mining and Metallurgy in association with the Consiglio Nazionale Delle Ricerche, Istituto per il Trattamento dei Minerali, and held in Rome from 18th to 21st September, 1984.

The papers are generally well written, and the visual material is clearly reproduced. The monograph is a useful source of information for those in the mining industry as well as in academia.

Of the papers presented, the large majority deal with the results of basic research and development, and shed light on some aspects of flotation. A number of papers cover the field of collectors for sulphide and non-sulphide minerals. The properties of these reagents in solution, reaction mechanisms, and applications in practice are dealt with. New collectors for the flotation of coal, and the flotation of feldspathic and ferrous minerals from quartz are described. An account is given of a novel reagent that acts as both collector and frother in the flotation of sulphide minerals.

Other papers covering the field of froth flotation deal with activation, the depressant function in the separation of apatite from calcite and dolomite, sphalerite-pyrite separation, and a new frother. One paper deals comprehensively with the selection of reagents for the treatment of a porphyry copper-gold deposit.

Papers on grinding consider material breakage properties, slurry rheology, and the effect of surfactants.

The development of reagents for the solvent extraction of copper is reviewed, and a novel extractant for copper from chloride leach liquors is described. Another paper deals with solvents for zinc, manganese, and sulphuric acid in the electrolytic-zinc industry.

Possible criteria for the selection of activated carbon for use in carbon-in-pulp plants are discussed, and a model is proposed for use in product selection.

A number of papers deal with aspects of the flocculation process. Included is a review covering synthetic flocculants, and a paper that deals with selective flocculation in the treatment of low-grade deposits.