

# Book Reviews

## Extractive metallurgy of copper

by A.K. Biswas and W.G. Davenport

3rd edn. ISBN 0 08 042124 5. London, Pergamon, 1995.

Reviewer: R.H. Eric\*

This edition is organized in twenty-three chapters, and contains exactly 500 pages including three appendices and an index. The first and second editions were published in 1976 and 1980 respectively, and both contained nineteen chapters. The second edition brought the operating data and process descriptions up to date. The third edition covers comprehensively the changes that have taken place in the primary copper industry over the past two decades. For example, reverberatory furnaces now make up only a third of the major primary smelting furnaces, compared with about three-quarters in the 1970s. Control of air and water pollution and recycling are given much more emphasis, along with novel and emerging technologies.

This book, as the title indicates, is very specialized. The starting point is with copper ores and minerals, giving a broad

overview of the processes including the recycling of scrap and production statistics. The book then follows the processing steps: concentration, matte-smelting principles, flash-smelting, reverberatory-furnace smelting, electric-furnace smelting, Noranda and Teniente processes, emerging technologies, matte conversion, copper loss in slags, direct to blister flash smelting, continuous multi-furnace smelting, capture and fixation of sulphur, fire refining, electrolytic refining, hydrometallurgical extraction, solvent extraction, electrowinning, recycling, melting-casting and quality, and costs of copper extraction.

The book is well-written and easy to read, and certain parts could well be used in undergraduate courses on extractive metallurgy. However, it is more of a reference book, on the extractive metallurgy of copper than a textbook for a metallurgical-engineering curriculum. It is suited more to advanced students, plant metallurgists and supervisors, and process engineers. ♦

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## African Mining '95

6-9 June, Windhoek, Namibia

Reviewer: Dr Olga Svoboda\*

Two previous African Mining conferences were held in 1987 and 1991 in Harare, Zimbabwe. This year, the British Institution of Mining and Metallurgy decided to move the event to Windhoek, Namibia, and organize it in the brand-new Safari Court Hotel convention Centre.

African Mining '95 was attended by more than 200 delegates, with a strong participation from African countries. The programme included 43 papers addressing policy issues and technical matters, and was divided into sessions on geology (11 papers), mining (10 papers), processing (8 papers), environment (3 papers), and policy and investment (8 papers).

The opening address was delivered by the Hon. Andimba Toivo Ya Toivo, the Namibian Minister of Mines and Energy. The keynote lecture by J.M. Otto from the University of Dundee, UK, dealt with the topic of *International competition for mineral investment: implications for Africa*.

The following presentations also attracted considerable interest from the audience: *Creating a conducive investment climate for the mineral sector* by C. Chipato and S.T. Matema (ZMDC, Zimbabwe), *Investment decisions by an African gold miner* by P.N. Cowley (Cluff Resources, UK), *Mineral potential of Central Africa* by C. Premoli (International Mineral Research, Australia), *Use of a global positioning system for production monitoring and reporting at NAMDEB* by M.J. Brooks (NAMDEB, Namibia), *Some financial aspects of the design of South African gold mines* by V.O. Steed (VS Energy Systems, South Africa) and E.A. Bunt, *Magnetic separation as a means of increasing the treatment rate of a sulphide flotation plant* by S. Holzhausen and P.C. Engelbrecht (Black Mountain Mineral

Development Comp.), *NAMDAT—a mineral information system for Namibia* by B.G. Hoal and H. Roesener (Geological Survey, Namibia), and *A productivity accounting information system* by C.L. Workman-Davies (University of the Witwatersrand, South Africa).

The papers on exploration geology covered mineral resources in different African countries as well as specific mineral deposits. Some exploration techniques were also discussed. The mining and processing papers included a number of case studies on current technology. Environmental papers dealt with the problems associated generally with the impact of mining, water management, and closure of mines.

The conference was preceded and followed by technical visits to several Namibian mines (Otjihase, Navachab, Rossing). Tours to the Rosh Pinah and Aucas mines and the Namdeb Diamond Corporation also included sightseeing of the scenic Fish River Canyon, and a visit to the Tsumeb and Kombat mines was combined with game viewing in the Etosha National Park.

The motto of the entire conference was suggested in the keynote lecture: investment is needed in Africa to improve mineral production and to boost the deteriorating economies in many countries. This mineral-rich continent has the potential to supply a significant portion of the world's mineral needs. Africa, however, does not receive the same levels of investment as other regions. According to the World Bank, in the early 1990s Africa, excluding South Africa, attracted less than 5 per cent of global mineral exploration and capital expenditure. The money will come only if the governments adopt pragmatic and competitive fiscal and regulatory policies to attract investors in the tough and competitive global investment market. ♦

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