

## Book reviews

Bowen, R., and Gunatilaka, A. *Copper, its Geology and economics*. London, Applied Science Publishers, 1977.

This is an authoritative, up-to-date, and unique book on the geology and economics of copper-ore deposits. The text concentrates on an accurate description of the association of copper mineralization with specific geological environments, and discusses the ore-forming processes in such a manner that the interested geologist can relate these processes, with a considerable degree of certainty, both to crustal models in the regional sense and to local geological parameters. This book, if read carefully by the mining and exploration geologist, will assist his understanding of each category of copper-ore deposit relative to the geological framework. It therefore enhances the recognition of copper-potential environments in exploration, and assists the mining geologist in assessing each orebody.

The technical aspects of the book are professionally arranged, and all the geological descriptions are of a high academic standard.

The section on the economics of copper deposits and the industry is short and simply presented. This is not a book for the mineral economist; the economics of the mining and marketing of the metal are discussed in such a manner as to enlighten the geologist or mining engineer on the economic and politico-legal aspects of world production and the selling of copper, rather than to present any in-depth study of the economics of the copper industry.

In summary, therefore, the book is a 'must' for any geologist or mining engineer associated with the exploration for copper, or the mining of copper and its associated metals.

D.L.K.

Miller, D. S. *Internal flow systems*. (Volume 4 in the BHRA Fluid Engineering Series). 1978. 288 pp. £21.50.

This book is intended as a practical, straightforward design manual for use by engineers engaged on both large-scale civil-engineering projects and small-scale piping systems. At high Reynolds numbers (about  $10^6$ ), significant energy and construction savings can be effected through proper design, and, when viewed in terms of the millions of miles of piping being constructed, any saving is likely to be considerable.

Detailed and immediately applicable information is given on the following:

- Flow at high Reynolds numbers
- Loss prediction in the absence of experimental data
- Friction losses — experimental data and design details
- Loss coefficients — experimental data and design recommendations for systems and components
- Data reliability assessment
- Cavitation — description and cavitation velocity data
- Transients — nature, cause and surge protection.

Much of the information is presented in graphical and tabular form for ease of reference, and the book is fully illustrated throughout. As well as assessing the reliability of existing experimental data, the author includes a considerable amount of new data, particularly in relation to diffusers and the interaction of components with one another and with the system as a whole.

The book is obtainable from BHRA Fluid Engineering, Cranfield, Bedford MK43 OAJ, England.

H.G.

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## MACH 80

The Machine Tool Trades Association of Great Britain (M.T.T.A.) announce that MACH 80 — The International Machine Tool Exhibition — will take place from Tuesday, 22nd April, to Friday, 2nd May, 1980, at the National Exhibition Centre, Birmingham. The net stand area will cover at least 35 000 m<sup>2</sup> in Halls 1, 4, 5, 6, and 6A, and will be open to visitors on all eleven days (including Saturday and Sunday).

MACH 76 was the largest show of its kind ever staged in Britain. More than 350 exhibitors, representing over 1000 organizations in 26 countries, put on a show of over 2000 machines and ancillary equipment that attracted some 88 000 visitors from 71 countries. The M.T.T.A., who have staged the show every four years since 1912, predict that MACH 80 will be even larger.

The 1980 exhibition is open to all British manufacturers of machine tools and equipment, as well as to importers who are members of the M.T.T.A. Arrangements

are currently being made for participation by members of kindred trade associations with machine-tool interests — including tools, gauges, controls, instruments, lubricants, and components.

World machine-tool production was recently estimated at over \$15 000 million, and MACH 80 will provide the first truly international showplace of the eighties for the latest products of the industry throughout the world. Technologically, one of the most interesting developments is likely to be the widespread application of microprocessors to machine-tool control, whilst recent decisions in the U.S.A. and Europe to go into production with new civil aircraft should give the machine-tool industry a much-needed financial boost.

Further information is obtainable from The Machine Tool Trades Association, 62 Bayswater Road, London W2 3PH, England.