Book News

1. New publications

● *International minerals/metals review — 1982.* Washington D.C., McGraw-Hill, 1983. 720 pp. U.S.$117.

Information is given on more than a hundred metals and minerals in thirty-six countries, with special reports on China, U.S.S.R., and six African countries. Also included is the U.S. National Materials and Minerals Program Plan, the Reagan Administration's 1982 proposals for new stockpiles, federal land development, and regulatory reform policies.

● *Mining subsidence engineering,* by Helmut Kratzsch. New York, Springer, 1983. 580 pp. U.S. $63,20.

The book deals with the current state of international knowledge on strata and ground movement over mine workings, with its damaging effects on mine shafts and the land surface, and with measures for regulating mining damage in law and reducing it in practice. Discussion begins with the mine excavation underground — the cause — and ends with the damage to surface structures — the effect.

● *Papers presented at the 6th International Symposium on Jet Cutting Technology, Guildford, England: April 6–8, 1982,* edited by H. S. Stephens and E. B. Davies. Cranfield (England), BHRA Fluid Engineering, 1982. £40.

The papers are arranged in the following sections: cavitating jets and equipment, special applications, unsteady jets, safety, basic jetting studies, mining, recent jetting applications, jetting with abrasives.

2. Mintek reports

The following reports are available free of charge from Mintek, Private Bag X3015, Randburg, 2125 South Africa.

● Report M95

Modern applications of polarography and voltammetry to inorganic analysis.

This report summarizes developments in polarography and voltammetry up to 1982. Modern electronic equipment and scanning waveforms are explained briefly. Extensive tables of recent inorganic applications, mainly in the geochemical and metallurgical fields, are included, and show results based on the new approaches.

● Report M96

The mathematical modelling of the reduction behaviour of chromite from the Upper Chromitite Layer of the Bushveld Complex.

Sized chromite particles from the Upper Chromitite Layer of the Bushveld Complex were reduced with Rand Carbide char under an inert argon atmosphere at various temperatures. The extent of reduction was continuously monitored by thermogravimetric analysis. The degree of metallization of iron and chromium species was calculated from the results of chemical analyses, and was related to the degree of reduction determined by thermogravimetric analysis. These results, together with electron-microprobe analyses and observations by use of a microscope, led to the development of a mathematical model based on the diffusion of species out of a spherical particle to describe the reduction behaviour. The model fits the results well up to a reduction of about 75 per cent.

● Report M113

The selective flotation of South African chromite.

In this investigation an attempt was made to find a general method for the selective separation of chromite from the gangue constituents of its ore by flotation.

Various tests were conducted on Maandagshoek UG-2, Pandora UG-2, Grasvally, Winterveld, and Steelpoort chromite ores.

The improvement of selectivity by the complexing of interfering cations with chelating agents was not successful, and an almost complete recovery of the whole ore was achieved.

When the ore was conditioned with mineral acids at low pH values in the pulp, chromite was separated successfully from the gangue by the use of certain collectors. (The pH value at which conditioning is conducted is critically important, pH values around 1 being best. At higher pH values, much longer conditioning times are necessary.)

Reagent A825 (a petroleum sulphonate) was successful with sulphuric acid alone, but cocoamine acetate and dodecyl-trimethyl-ammonium bromide were successful with sulphuric, hydrochloric, nitric, and phosphoric acids.

The results are supported by zeta-potential measurements on samples of pure minerals.

Conference on copper

The International Conference 'Copper 83', to be held in London on 1st and 2nd November, 1983, will provide a valuable forum for all connected with the manufacture and use of copper.

In the first session, chaired by Sir Monty Finniston, keynote papers will examine the status and prospects for the mining and fabricating industries, and the current position and future trends with respect to the consumption of copper in end-use industries. Distinguished speakers will include Sir Ronald Prain (President of the Copper Development Association), Sir Alistair Frame (Deputy Chairman of RTZ), Morgan Davies (Managing Director, CDA), and Robert Perlman (Director of the Commodities Research Unit).

Three parallel sessions will then deal with topical aspects of the production and supply of copper, fabrication of copper and its alloys, and applications technology and markets for copper. Some 45 papers will be presented by speakers from companies worldwide.

Modern mining and ore-beneficiation techniques, leaching and solvent extraction, the treatment of complex ores, and flash smelting are among the topics being covered in the mining section.

The section on fabrication will include the production of continuous cast rod, electromagnetic casting, hydrostatic extrusion, and production of clad materials and of tube from strip.

Papers on the role of copper and its alloys in ship and marine applications (including desalination plant), in electronics, in superconductor systems, in special alloys (including the spinodal and shape memory alloys), in alternative energy systems, and in water systems in the building industry will be covered in the section on the application of technology and markets.

The conference is sponsored and organized by the Metals Society, and by the Copper Development Association, as part of the latter's Jubilee Celebrations. Co-sponsors are the British Non-Ferrous Metals Federation, the British Non-Ferrous Metals Technology Centre, the Commodities Research Unit, and The Institution of Mining and Metallurgy.

Optional visits to BICC Cables Ltd (Prescot, Merseyside), BNF Metals Technology Centre (Wantage), and IMI Refiners Ltd (Birmingham) have been arranged for 3rd November.

Registration forms, and further information on the conference and visits are available from the Conference Department (CU), The Metals Society, 1 Carlton House Terrace, London SWIY 5DB. Telephone: 01-839 4071, telex 8814813.

Underwater mining

The 14th Underwater Mining Institute will be held in Madison, Wisconsin, on 7th and 8th November, 1983. Topics will include sulphide deposits on the Juan de Fuca Ridge, sulphide data for exploration on land, Red Sea mineral deposits, geophysical constraints on geological processes at mid-ocean ridges, engineering systems for marine mining, supermagnets for separation of marine minerals, hydrometallurgy applied to marine mining, deep-water recovery systems, mining of brine deposits of Great Salt Lake, technology transfer in marine mining, assessment of marine mining in 1983, and new marine mining opportunities for industry in the U.S. 200-mile exclusive economic zone.

For registration information contact Mr Gene Woock, Sea Grant Advisory Services, University of Wisconsin, 1800 University Avenue, Madison, Wisconsin 53705, U.S.A., telephone: 608/262-0905.

For programme information contact Dr J. R. Moore, Marine Science Institute, The University of Texas-Austin, 200 East 26 1/2 Street, Austin, Texas, 78705, U.S.A., telephone: 512/471-4816.

Asian mining

The Institution of Mining and Metallurgy, in conjunction with the Chamber of Mines of the Philippines, will hold an international conference, Asian Mining '84, in Manila, Philippines, from 6th to 8th November, 1984.

Papers will deal with technical and operational aspects of the range of minerals industry activities — from exploration to mining, mineral processing, smelting and refining; in addition there will be papers on policy, financing, and related topics.

Technical visits are planned in the Philippines (pre-conference tour) and to Malaysia/Burma and to Japan.

Enquiries about the conference should be addressed to the Meetings Secretary, The Institution of Mining and Metallurgy, 44 Portland Place, London W1N 4BR, England (telephone: 01-580 3802; telex: 261410).

The exhibition, *Asian mining '84*, will be held in Manila from 6th to 10th November, 1984. Enquiries relating to the exhibition should be addressed to the organizers, ITF Pte. Ltd., Suite 804, 8th Floor, World Trade Centre, 1 Maritime Square, Singapore 0409 (telephone: 2711013; telex: RS 26085), or to Industrial and Trade Fairs International Limited, Radcliffe House, Blenheim Court, Solihull, West Midlands, B91 2BG, England (telephone: 021 705 6707; telex 337073).

Apcom '84

The Eighteenth International Symposium on the Application of Computers and Mathematics in the Minerals Industries will be held in London in the week 26th to 30th March, 1984. The Symposium is being organized by The Institution of Mining and Metallurgy.

It is expected that some 90 papers will be presented at the symposium prepared by authors from 16 countries. The following aspects will be covered:

Exploration

Geochemistry and geophysics
General exploration

Geostatistics and ore-reserve estimation

Geostatistics in coal mining
Geostatistical mine-planning studies
Geostatistical ore-reserve estimation
Sampling and grade control
Geostatistics
Drilling and location

Financial evaluation and planning

Mine design and operations

Surface mining: production scheduling, pit design and computer graphics
Mine transport and machinery: maintenance and transport simulation
Underground mining: underground environment, coal mine planning and mine models and simulation
Rock mechanics

Mineral processing

Comminution
Coal preparation
Process plant simulation studies
Recovery processes

Market analysis and prediction

Computer technology

Data collection
Information retrieval

All enquiries in connection with APCOM '84 should be addressed to The Conference Office, The Institution of Mining and Metallurgy, 44 Portland Place, London W1N 4BR (telephone 01-580 3802; telex 261410 IMM G.)

Jet cutting

Another Symposium on the very successful and popular series of international conferences on Jet Cutting Technology is being arranged by BHRA. On this occasion, it will be organized in conjunction with the Division of Mechanical Engineering of the National Research Council of Canada and will take place at Ottawa, from 26th to 28th June, 1984.

Developments in techniques and equipment and in the number and variety of potential applications that have taken place since the last Symposium was held in the U.K. in April 1982, emphasize the necessity for this further opportunity for all those concerned to meet again.

The official language of the Symposium will be English. Abstracts in French will be prepared by the Canadian Organising Committee.

Since the last Symposium, many advances have been made in the field of high-pressure jets and it is expected that this Symposium will again provide an opportunity for leading authorities, world-wide, to meet, present, and discuss the results of their studies, their experiences, and opinions.

The meeting is expected to embrace a wide range of papers covering many areas of the technology with an emphasis on practical aspects. Offers of papers should lie within the subject areas indicated below:

- Fluid mechanics of jets
- Basic cutting studies
- Modulated and pulsed jet systems
- Design, testing, and operation of equipment
- Safety measures
- Applications in industry and civil engineering and in mining and tunnelling
- Special applications including jet cleaning
- Water-abrasive cleaning and cutting systems
- Environmental and economic aspects

State-of-the-art reviews as well as papers reporting new developments will be welcomed.

Further information is available from Symposium Organizer, 7 Jet Cutting, BHRA, The Fluid Engineering Centre, Cranfield, Bedford MK43 0AJ, England.