

Book news

1. Book reviews

● *A report by the Monopolies and Mergers Commission on the efficiency and costs in the development, production and supply of coal by the NCB (Chairman G. Le Quesne)*. London, Her Majesty's Stationery Office, Jun. 1983. £20 for report and appendices (2 vols).

Reviewer: M. J. Martinson

Since the nationalization of the British coal-mining industry on 1st January, 1947, under the first post-war Labour government, all the larger coal mines in Britain have been managed and controlled by the National Coal Board (NCB). Thus, on vesting day, the Board inherited 958 collieries that employed 704 000 men to produce 200 Mt of saleable coal in the first year of nationalized operations, and an industry suffering from the after-effects of the war and characterized by

- unsophisticated production technology,
- poor occupational health and safety conditions,
- abysmal labour relations.

It could be argued that nationalization of the industry at that particular juncture was the height of political and economic folly, but on the other hand not even the present Conservative government has suggested that the industry should be returned to private ownership. Certainly, the NCB can today claim credit for major improvements in mining technology, increased productivity, and reduced injury rates; realistic research and development programmes have paid dividends in all three areas. However, for reasons possibly beyond its control, the NCB has been less successful in bridging the gap between management and labour, and on one memorable occasion the intransigence of the National Union of Mineworkers even precipitated the fall of a Conservative government.

In the decade following nationalization, coal production in Britain recovered to a maximum of 225 Mt per year of saleable coal, and then began to decline as users changed to alternative energy sources. In recent years, the total NCB sales have ranged between 120 and 130 Mt per year, of which in the financial year 1981–82 just over 106 Mt was produced by 200 'deep' mines with an overall OMS of 2,40 t. Although some collieries operated profitably, no fewer than 141 either broke even or worked at a loss. In the South Wales area alone, 31 out of 33 pits operated at a loss; at about £105 per ton, the Treforgan Colliery in South Wales had the dubious distinction of recording the largest loss of all British coal mines. In 1981–82 total government grants (social, operating, regional, and deficit) to the industry amounted to nearly £575 million.

It is against this background that the British Department of Trade asked the Monopolies and Mergers Commission in March 1982 to investigate and report on six questions 'relating to the efficiency and costs of the National Coal Board in the development, production and supply of coal'. The six questions were as follows:

- (a) the extent, if any, to which the NCB's operating costs can be contained or reduced;
- (b) its system of internal cost control;

- (c) its purchasing policies;
- (d) its methods of controlling its stocks of stores and materials;
- (e) the planning and appraisal of new investments;
- (f) the management, supervision, and control of investment projects.

The Commission is perhaps better known for its intervention in take-over bids—the referral of the Anderson Strathclyde and Sotheby Parke Bernet bids to the Monopolies and Mergers Commission received some press publicity in South Africa—but in the present instance the Commission has produced an exemplary in-depth analysis of the NCB with commendable dispatch. Incidentally, the Commission was assisted in its technical inquiries by, among others, Professor Tim Shaw, head of the Department of Mineral Resource Engineering at the Royal School of Mines and well known in South African mining circles.

Not unexpectedly, the Commission's report focuses on the loss-making pits operated by the NCB. The Board has, of course, been aware all along of the deteriorating situation, but has had very limited success in negotiating the closure of uneconomic pits with union leaders in the face of persistent threats of national strike action in protest against further loss of jobs in the industry. The NCB's detractors have long argued that it has been too 'wet' in its dealings with the unions on pit-closure policy, and the appointment of a new chairman of the NCB and the publication of the Commission's report are generally seen as opening shots in a new campaign to make the industry viable again.

Aspects of the report relating specifically to the functioning of a nationalized industry in Britain may be of limited local interest, but several chapters contain material that should be of interest to South African mining engineers, including the chapters on

- Demand forecasts, consumption and marketing;
- Long-term planning;
- The planning and control of deep-mined coal production;
- Investment and investment appraisal;
- The management, supervision and control of major investment properties;
- Industrial relations;
- Purchasing and stores-control.

Unfortunately some 'sensitive' material—both text and tables—has been excised from the published report, but this does not materially interfere with the sense and readability of the report as a whole.

● *Canadian mines handbook 1983–84*, edited by M. R. Brown. Toronto, Northern Miner Press Ltd, 1983. 444 pp. \$22.

Reviewer: Northern Miner Review Editor

The 1983–84 edition of this handbook is a concise, comprehensive guide to the Canadian mining scene. With metal markets improving and prices rising, the mining industry appears to be taking on a more optimistic tone. This is reflected by a growing bustle of exploration, as companies become more confident of the economic up-

turn.

Right now, the centre of attention is gold. The Hemlo area—the most significant new gold camp Canada has seen in years—has generated particular excitement and accounts for many of the 300 new companies that appear in this edition of the handbook. (A foldout coloured wall-map is included, showing the geology and holdings in six of the busiest gold camps, including Hemlo.)

The handbook, published annually since 1936, provides a succinct rundown on virtually every active Canadian mining company. Included are key personnel, land holdings, exploration, production, dividends, and current financial results. Besides the exhaustive survey of companies, it contains charts, maps, tables, and facts on the performance of the Canadian mining industry, from mines and smelters to yearly stock ranges. All in all, it is a handy, reliable, and thorough reference volume for anyone interested in mining.

2. New publications

● *Developments in geophysical exploration methods—5*, edited by A. A. Fitch. Barking. Applied Science Publishers Ltd (Ripple Road, Barking, Essex IG 11 OSA, England), 1983. 255 pp. £35.75.

The practising geophysicist is often called upon to investigate problems in the sub-surface that require methods not wholly familiar. There is a great range of such problems, and often a range of methods that could be applied. It is difficult to track down descriptions of techniques that have been used, and the results achieved. In this volume, specialists have written original papers on several such problems, and the results that have been achieved with various methods.

● *High-pressure researches in geoscience—behaviour and properties of earth materials at high pressures and temperatures*, edited by W. Schreyer. Stuttgart, E. Schweizerbart'sche Verlagsbuchhandlung, 1983. 545 pp. DM 188.

Most of the papers collected in the present volume are the outgrowth of a specially funded Priority Program (Schwerpunkt) initiated and organized by Deutsche Forschungsgemeinschaft as a national contribution of the Federal Republic of Germany to the International Geodynamics Project. Contrary to earlier Priority Programs that had emphasized the phase equilibria aspect of high-pressure research, the prime goal of this programme was to study geologically relevant materials at elevated pressures and temperatures, in other words, to measure their properties and behaviour, wherever possible and practical, *in situ* during high-pressure treatment, and not after quenching to room conditions. This type of experimental approach is indispensable, even in phase equilibria work, for fast-reacting systems without kinetic locks such as in most fluids. Obviously, only those physical material properties that are valid for elevated pressures and temperatures allow a fair comparison with geophysical measurements of such properties in the deep-earth environment.

● *Dynamics of oil and gas accumulations*, by Alain Perrodon. Pau, Elf Aquitaine (Documentation Centre Micoulau, 64018 Pau, France), 1983. 368 pp. 240 FF. This is an entirely revised and updated text of the French edition (1980), translated by Nissim Marshall. It deals with the evolution of sedimentary basins; hydrocarbon occurrences as linked to the geology and chemistry of source rocks, reservoir genesis, migration, traps; petroleum provinces; and exploration philosophy.

● *New paths to mineral exploration*, edited by F. Bender. Stuttgart, E. Schweizerbart'sche Verlagsbuchhandlung, 1983. 169 pp. DM 58.

These are the Proceedings of the Third International Symposium on Mineral Resources, which was held in Hannover (West Germany) from 27th to 29th October, 1982. The papers are grouped under the following headings: Mineral resources policies, Exploration and assessment of energy resources, Prospecting for and assessment of non-metallic and metallic raw materials.

● *Results of the First Workshop on Standards in Geothermics*, edited by R. Haenel and M. Gupta. Stuttgart, E. Schweizerbart'sche Verlagsbuchhandlung, 1983. DM 98. This volume contains the seventeen papers contributed to a workshop organized by the International Heat Flow Commission (IHFC) of the International Association of the Seismology and Physics of the Earth's Interior during the 21st General Assembly in London, Ontario (Canada), on 24th July, 1981. The main objective of the workshop was to highlight the guidelines for obtaining reliable geothermal data that can easily be compared, especially while interpreting global data. A need has been felt for some time to reconsider certain terms and to define them more clearly, to prepare correction procedures and to recommend standardization of measurements, corrections of geothermal parameters, and forms for data presentation. The workshop was divided into four sessions: Temperature, Thermal conductivity, Heat flow density, and Geothermal resources and reserves.

● *E&MJ book of flowsheets* edited by Paul C. Merritt. New York, McGraw-Hill, 1983. 214 pp. \$42.

This book presents in one place the best of some hundreds of flowsheets that have appeared in *Engineering & Mining Journal* during the past several years. Detailing the operations of concentrators, smelters, and refineries, the flowsheets, in most instances, are accompanied by an informative description. The criteria in the selection of flowsheets included complexity of processing requirements, utilization of new technologies or equipment, operating efficiencies, and cost effectiveness. As an additional service to readers, the book provides a 55-page opening section summarizing modern mineral-processing techniques. Also taken from *E&MJ*, this guide details the present state of the art in instrumentation and process control; crushing; grinding; flotation; solid-liquid separation; drying, calcining, and agglomeration; air- and water-pollution controls.

● *1983 E&MJ international directory of mining*. New York, McGraw-Hill, 1983. 808 pp. \$70.

This publication contains detailed data on the orga-

nization and activities of some 2200 companies, and descriptions of the operations of their 2800 mine/plant units and exploration offices, arranged by U.S. State, Canadian Province, and internationally by country. Also featured in this edition are two new directories: a Directory of Mineral Sales Organizations, and a Directory of Ore-shipping Facilities.

● *The future of heavy crude and tar sands — volume II.* New York, McGraw-Hill, 1983. 1300 pp. \$110.

This book provides an update on the activity and future potentials of this key oil source, along with a comprehensive assessment of the latest expanding knowledge and technologies for its development. Here are the complete technical reports of the many worldwide authorities, mine operators, engineers, and scientists that were presented at the 2nd United Nations' International Conference on Heavy Crude and Tar Sands, held in Caracas, Venezuela, 7th to 17th Feb., 1982.

3. Mineral Policy and Energy publications

The following reviews of the activity and developments during 1980 in respect to the chief minerals produced or consumed in Canada are now available. Prepared by members of the Mineral Policy and Energy Sectors staff, they are for sale at \$1.00 per copy.

- *Aluminium*, by A. Johnston. 12 pp.
- *Arsenic*, by J. J. Hogan. 4 pp.
- *Cobalt*, by D. G. Fong. 6 pp.
- *Selenium and tellurium*, by A. G. Johnston. 7 pp.
- *Stone*, by D. H. Stonehouse. 13 pp.
- *Uranium*, by R. T. Whillans. 16 pp.

Requests for copies should be addressed to Canadian Government Publishing Centre, Supply and Services Canada, Ottawa, Canada K1A 0S9, accompanied by postal money order payable to the Receiver General for Canada.

4. Mintek publications

The following publications are available free of charge from the Council for Mineral Technology, Private Bag X3015, Randburg 2125.

● Report M88

The recovery of platinum-group metals and gold by the lead-collection step of the fire-assay procedure.

Because the values for PGM + Au (i.e. platinum, palladium, rhodium, and gold) and for gold alone, and the precision with which they are determined by fire assay, have been shown to vary considerably between South African laboratories, and because small differences in these values can represent millions of rands, it is essential that the accepted method of analysis, fire assay, should give accurate and precise values.

In an investigation into the fire-assay procedure it was found that a reducing atmosphere should be maintained throughout the fusion step (which results in near-stoi-

chiometric recoveries of lead and higher recoveries of gold) and that the additions of litharge should be smaller than those normally used at the Council for Mineral Technology (Mintek) provided the sample contains little or no nickel and the ratio of litharge to reducing agent is between 9 and 12.

Under these controlled conditions, the recoveries of PGM + Au in silicate and chromite ores from the Merensky Reef and of gold in Witwatersrand ores are approximately 5, 16, and 9 per cent higher respectively than the accepted values.

A revised laboratory method is detailed in an appendix.

● Report M104

The preparation and analysis of reference materials, and the provision of recommended values. Progress report no. 5.

This report covers the progress made in the collection of reference materials from the inception of the project in 1967 to December 1982, and supersedes all the previous reports on this project.

Comprehensive tables of the materials that have been evaluated are given, together with their recommended and tentative values, as well as a separate list of materials collected during the period 1979 to 1982.

● Report M111

The determination, by flow-injection analysis, of iron, sulphate, silver, and cadmium.

This report describes the spectrophotometric determination by flow-injection analysis including, where necessary, liquid-liquid extraction of iron with 1,10-phenanthroline; of sulphate by its catalytic effect on the methylthymol blue-zirconium reaction; of silver with bromopyrogallol red and 1,10-phenanthroline; and of cadmium with dithizone. Optimum conditions for each system are established, and sensitivities and ranges of determination are given.

● Special publication 3

A guide to the presentation of papers.

The publication gives the three golden rules of public speaking: be heard, be listened to, and be understood. Explanations of these rules, and hints on how to stick to them, are given.

For example, darkness has a psychological effect on audiences. When a speaker cannot be seen distinctly, his voice seems to be softer. To be understood, he must talk slowly, and consider the audience in relation to the content of the talk. If he fails to hold his audience's attention, he will not be listened to.

Since a picture is worth a thousand words, speakers should use graphics as much as possible, and the special publication includes much useful information on what makes a good slide or transparency.

Finally, a checklist is given, including what to do before the presentation, during the introduction, during the presentation, and at the end (which can make or break all the hard work that has been put in up to that point).