

SPOTLIGHT

on the 13th CMMI Congress

by H.E. JAMES*

The 13th Congress of the Council of Mining and Metallurgical Institutions (CMMI) was held in Singapore from 11th to 16th May, 1986. Tours to Australia, Malaysia, Thailand, South Korea, and Japan took place the week before and the week after the Congress.

Registrations

By far the largest contingents at the Congress were from Australia (157 delegates and 65 affiliates) and South Africa (127 delegates and 99 affiliates). The other 25 countries represented at the Congress accounted for 118 delegates and 37 affiliates. Thus the total registrations amounted to 402 delegates and 201 affiliates.

The 27 countries represented were Australia, Argentina, Austria, Brazil, Canada, Chile, China (People's Republic), Egypt, Finland, Indonesia, India, Italy, Japan, Malaysia, Namibia, New Zealand, Nigeria, Papua New Guinea, Philippines, Singapore, South Africa, Switzerland, United Kingdom, United States of America, West Germany, Zambia, and Zimbabwe.

Official Opening and Keynote Addresses

Sir Alistair Frame, Chairman of RTZ Limited and currently Chairman of CMMI, opened the Congress and also presented the first CMMI lecture, 'Cost-reducing innovations in the mining and metal-processing industries'.

Sir James Foots, Deputy Chairman, MIM Holdings Limited, and President of the 13th CMMI Congress, presented an address, 'The twenty-first century—mining for mankind—the responsibility is ours'.

The following keynote addresses were presented during the Congress:

'Mining—the challenges of tomorrow', G. Y. Nisbet, South Africa

'Technological developments in geosciences up to the year 2000 and beyond', Dr A.F. Laurin, Canada

'Relationships with government', B.P. Webb, Australia

'Extraction metallurgy to 2000 and beyond', P.M.J. Gray, United Kingdom

'Petroleum—policies for an uncertain future', S. McGill, Australia

'The future trends of the non-ferrous industry in the world', Dr M. Fujimori, Japan.

The Guest Speaker at the Congress Dinner was Sir Hamilton Whyte, British High Commissioner in Singapore. His speech was followed by a vote of thanks on

behalf of the delegates by John Austin, Immediate Past President of the SAIMM.

Technical Sessions

Geology

Several papers were presented on the use of computers in data manipulation for the estimation of ore reserves, for mine production planning, and for the enhancement of regional exploration data. Several papers described systems involving the aerial definition of prospective localities, which are expected to find increasing application. These methods of remote sensing are complementary to regional geological studies, which, together with ore-deposit modelling, also received some attention. The search for gold deposits in Australasia received considerable attention, and two new lead-zinc provinces of Mississippi Valley type in the north of Western Australia were described.

The point was made that, with a slower growth in mineral consumption than was predicted for the past few decades, and the existence of ample reserves of most minerals, there may be less overall incentive to seek new resources. Exploration for mineral deposits is expected to continue, but may focus increasingly on high-grade or low-cost orebodies, which are expected to displace existing high-cost operations.

Mining

Deep underground mining received considerable attention, with papers covering the design of deep Witwatersrand gold mines, the use of hydropower in deep mining, the understanding, prediction, and control of rockbursts, and recent developments in underground-mining equipment.

Changes in underground coal-mining technology, the economic exploitation of deep coal seams by open-cast methods, and several other aspects of coal mining were described.

The other topics covered were support-and-fills underground, rock mechanics, stability in open pits, and equipment for the transportation of ore in open pits.

Metallurgy

Papers were presented on new developments in extractive metallurgy in South Africa, Australia, America, Europe, and Asia, covering laboratory studies, pilot-plant investigations, and innovation in large-scale operations. The results of research in comminution, flotation, coal washing, base-metal hydrometallurgy, and gold metallurgy were described. New technologies for the efficient utilization of coal in the iron and steel industry, the production of steel by the KR process, and technological developments in secondary steelmaking received attention.

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General

Papers were presented on the analysis of metal markets and future prices, the selling of Australia's crude oil, risk elements characteristic of mining investments, financial optimization of projects from pre-development onwards, long-term structural issues in the mining and metals industries, and new technology for the mineral industry. Technical and human considerations in the development of the Rössing uranium mine were described, and an update was presented on Australia's uranium resources and production.

Other topics that received attention were a critical review of research objectives in extractive metallurgy, the challenge of the 1980s for middle management in the mineral industry, the evolution of Canada's mineral policy over the past forty years, and applications of computer-aided engineering and project management in the Australian mining industry.

Education Forum

An Education Forum was held on the last day of the Congress. Four papers were presented, followed by an open discussion on the subject of education and training in the mineral industry for the 21st century.

The papers were commissioned by four of the member societies of CMMI but, in each case, the authors made it clear that the views expressed were their own and not necessarily representative of the societies concerned. The authors were Professor P. Hachett (Institution of Mining and Metallurgy), Dr J.E. Udd (Canadian Institute of Mining and Metallurgy and presented by Dr A.F. Laurin), Dr C.J. Fauconnier (South African Institute of Mining and Metallurgy), and J.O. Reynolds (Australasian Institute of Mining and Metallurgy).

Pre-congress Tours

Kalgoorlie (Western Australia)

This tour included gold mines and extraction plants (Paddington, Mount Charlotte, Mount Percy, Fimiston, Norseman, and Kambalda), as well as a nickel smelter (Western Mining Corporation), in the Kalgoorlie area.

Western Australia

Visits were made to iron-ore mines and beneficiation plants in the Pilbara district (Mount Newman Mining and Hamersley Iron). Also included in the tour was Dampier Salt (one of Australia's largest salt producers), the natural-gas project on the North West Shelf, and a visit to the Argyle diamond mine.

Northern Territory (Australia)

This tour included uranium mines in the East Alligator River area (Ranger Uranium Mine and the Rum Jungle Reclamation Project), bauxite mining and alumina production on Gove Peninsula (Nabalco), and the manganese operation at Groote Eylandt. The tour also included a visit to Oberi Rock (which has outstanding examples of Aboriginal rock art) and a five-hour tour of the tidal reaches of the South Alligator River on the Kakadu Princess, a modern river boat. The features of this last trip were the prolific birdlife and fauna, the feeding of salt-water crocodiles that lie in wait, and the serving of a barramundi lunch). Also included on the tour were

Woodcutters Rum Jungle (lead and zinc operation) and the Pine Creek Gold Mine.

Malaysia

Starting in Kuala Lumpur and terminating in Penang, this tour included visits to the Petronas Oil/Gas Project, the new steelmill of Heavy Industries Corporation of Malaysia at Chukai, one of the largest alluvial tin mines in Malaysia (Berjantai Tin Dredging), and a tin smelter at Butterworth (Malaysia Smelting Corporation).

Thailand

The operations visited included the Eastern Seaboard Gas Separation Plant (based on natural gas supplied from the Gulf of Thailand), the Sirikit Oil Field (Thai Shell), the Pha Daeng zinc mine and smelting plant, and the Mae Moh lignite mine and electricity-generating plant. The tour also included visits to the city of Sukhothai, the first capital of Thailand (between 1257 and 1389), with ruins of many old temples and of the Grand Palace from the reign of King Ramkhamhaeng, and to Chiang Mai, the second largest city of Thailand with numerous sightseeing spots and traditional handicrafts involving silk, cotton weaving, pottery, silverware, and lacquerware.

Post-congress Tours

North Queensland

This tour included Mount Isa Mine, one of the largest underground mines in the world and one of the few places where copper and silver-lead-zinc orebodies occur in close proximity. Also on the itinerary were visits to the refineries for copper and nickel near Townsville (the port for Mount Isa) and the bauxite mining operation at Weipa, where the kaolin deposits that occur under the bauxite are being developed for export.

New South Wales and South Australia

Starting in Sydney and ending in Adelaide, this tour included visits to the renowned high-grade lead-silver-zinc mines in the Broken Hill field, and to the large lead and zinc smelting and refining operation at Port Pirie. Also included was the iron and steel operation at Whyalla, and the Olympic Dam Project (copper, uranium, silver, and gold deposit with ore reserves of some 450 Mt).

Japan

Delegates had a choice of three tours in Japan. The first tour included complex-sulphide mines and smelters in the Akita region of Northern Honshu Island and sightseeing in the Towada National Park. The second tour included visits to copper smelters in the Inland Sea region of Japan around the city of Kurashiki and sightseeing in Kyoto and Nara. The third tour covered the Isa limestone mine in Western Honshu, the Miike Colliery in the South Island of Kyushu, and sightseeing in Kyoto and the Kumamoto district.

South Korea

This tour included Pohang Iron and Steel Company and Korea Zinc Company. The latter operates a modern electrolytic zinc refinery and a lead refinery, and produces

cadmium oxide, tin, copper, and cobalt oxide. Also included were visits to Korea Mining & Smelting, which produces copper, selenium, silver, gold, lead, platinum, and palladium, and Korea Tungsten, which operates a tungsten mine in the north-eastern section of Korea and manufactures tungsten metal powder and other tungsten products. Also seen were molybdenum and bismuth processing at the Taegu plants.

Excursions during Congress Week

A number of very interesting excursions were arranged for delegates and affiliates in and around Singapore. These included visits to a number of beautiful gardens—Jurong Bird Park and Chinese Gardens, Zoological Gardens, Mandai Orchid Garden, and the Botanic Gardens. Other visits included the Selangor Pewter Demonstration Centre, Ming Village (where replicas of Ming Dynasty porcelain are produced), and gemstone and batik factories. Technical visits included the Singapore Mint, the National Iron & Steel Mills, the Singapore Science Centre, and an excursion to view the underground-railway system under construction in Singapore.

As a gesture to South African passport holders who could not join the excursions to Malaysia, a special excursion was arranged to Sentosa Island, Singapore's Island Resort. Among many of its features are a Coral-arium with over 2000 shells, live corals, and tropical fish, and a wax museum, where life-size tableaux recreate Singapore's early years, as well as two dramatic moments from the Second World War—the British surrender to the Japanese in 1942 and the Japanese surrender to the Allied Forces in 1945. This tour, and most of the other excursions, ended at the famous Raffles Hotel, where the participants enjoyed Singapore Slings (created in 1915 by barman Ngiam Tong Boon and containing Beefeater gin, Peter Heering, a dash each of benedictine and cointreau, pineapple and lime juice, Angostura bitters, and decorated with pineapple and cherries).

Proceedings of the Congress

The proceedings of the four technical sessions were available to delegates on registration, separate volumes having been printed for papers on geology and exploration, mining, metallurgy, and general topics. Also available at the Congress was a fifth volume—'Guide to the Australian Mineral Industry.' A sixth volume, containing

the plenary addresses, is to be posted to delegates in due course.

Conclusion

The following are the main features that make CMMI congresses unique.

- The topics are of a multidisciplinary nature. (There are no other international conferences where the technical sessions cover geology, mining, metallurgy, and general topics such as mineral policy, economics, and finance.)
- Each congress offers an opportunity to the host country to present an up-to-date review of its mining and metallurgical industries by way of plenary addresses, technical papers, and special congress publications.
- Extensive pre- and post-congress tours enable delegates from other countries to acquaint themselves at first hand with mineral deposits, mines, and metallurgical processing plants.
- Many of the delegates are accompanied by their spouses, and opportunities are created for people-to-people contact between influential people from countries represented by the constituent bodies, as well as from many other countries.

All these features were very successfully embodied in the 13th CMMI Congress. It is evident that, if future CMMI congresses follow the same pattern and are organized as efficiently as the 13th Congress, they will continue to receive strong support from the major mining houses in South Africa.

The mineral industry in what used to be the British Empire has convened thirteen congresses since the first held in London in 1924. During the 62-year history of these congresses, many problems have been encountered, as a result of both political vicissitudes and economic constraints. However, the 13th Congress, hosted and organized by the Australasian Institute of Mining and Metallurgy, has once again demonstrated the very strong cohesion and fellowship among practitioners in the mineral industry worldwide.

It is sincerely hoped that this tradition will continue with the 14th CMMI Congress, which is to be held in London in May 1990.



Mrs Burns (Australia), Mr J.D. Austin (Anglovaal), and Mrs M. Austin



Mr H.E. James (Mintek) and Mr M. Suzuki (Mitsui Cyanamid, Japan)



Mr B.P. Webb (President, Australasian Institute of Mining and Metallurgy), Mrs Nisbet, and Mr Van Zyl Brink (Western Deep Levels) at the Congress Dinner



Mr G.Y. Nisbet (giving his plenary address during the official opening of the Congress), Mr J. Funnel (Honorary Secretary, 13th CMMI), Sir Allstair Frame (Chairman, CMMI), Sir James Foots (President, 13th CMMI), Mr B.P. Webb (President, AusIMM), and Mr Michael Jones (Secretary, CMMI Council)



Mrs J. James, Mr G.Y. Nisbet, and Mr H.E. James at the Congress Dinner



Mr N.J. Devine (Vaal Reefs) and Mrs and Mr Butler (Australia), at the Congress Dinner



Mr Michael West (Vice Chairman, CMMI), Mrs Stuart (Australia), and Mr John Austin (Anglovaal) at the Congress Dinner



Lion Dance at the Welcoming Reception, Mandarin Hotel