A Summary Of
ROCK MECHANICS IN CANADA - 1988

John E. Udd

MRL 88-137(OP)

Presented to the Associate Committee on Geotechnical Research, National Research Council, Canada, January, 1988

REPORT OF THE CANADIAN ROCK MECHANICS ASSOCIATION

(CARMA)

FOR 1987 AND 1988

Membership and Executive

The Canadian Rock Mechanics Association is composed of the members of the two constituent groups, namely: the Rock Mechanics Division of the Canadian Geotechnical Society and the Rock Mechanics and Strata Control Committee of the Canadian Institute of Mining and Metallurgy. Each group contributes about 200 members to the total CARMA membership (which is presently 406).

Traditionally, the offices of Chairman and Vice-Chairman of CARMA have alternated between the senior officials of the two constituent groups. The intent is to ensure that a balance of interests between civil and mining applications is maintained. At present, the Executive are: John E. Udd, Chairman (CIM-RMSCC), John Curran, Vice-Chairman (CGS-RMD), T. Carmichael, Secretary-Treasurer and three members from each of the CIM RMSCC and the GSC RMD. The CARMA secretariat is located at the Civil Research Division of Ontario Hydro, at 800 Kipling Avenue, Toronto, Ontario, M8Z 5S4.

Activities of CARMA

During early 1987, the total energies of CARMA were directed towards the organization of the 6th Congress of the International Society for Rock Mechanics. Held in Montreal, during the period August 30 - September 3, 1987, the Congress attracted over 500 participants from more than 30 nations. Such Congresses, held every four years, are the premiere international events in Rock Mechanics. This was the first occasion that an ISRM Congress has been held in Canada. The General Chairman, Dr. Gerhard Herget, and the organizing Committee are to be congratulated for their outstanding success.

At each Congress of the ISRM, the Society's Executive for the next four years is chosen. At Montreal, CARMA's nomination of Dr. John A. Franklin, of the University of Waterloo, for ISRM President, was successful. This marks the first time that the ISRM has been led by a Canadian.

In 1988, the national series of symposia was reviewed with the organization of the 15th Canadian Rock Mechanics Symposium by Dr. John Curran, of the University of Toronto. With the theme "Underground Rock Engineering", the symposium attracted about 100 people to Toronto during the period October 3-4, 1988. The dates were chosen to encourage attendance at both the 15th CRM and the 41st CGS Conference, which was held from October 5-7, 1988, in Kitchener.

It should be noted that the last previous Rock Mechanics Symnposium in Canada was held in Vancouver, in conjunction with the CIM meeting in May, 1982.

Activities of Constituent Groups

Both constituent groups of CARMA are active, but the CIM RMSCC has maintained an especially heavy schedule of activities. At present, six subcommittees meet regularly throughout the year (on Backfill; Rockbursts; Instrumentation; Soft Rock; Computers; Education and Research). The Instrumentation sub-committee, through John Franklin, has produced a "Mine Monitoring Manual" which will shortly be produced as a Special Volume by the CIM. At the last annual meeting of the CIM RMSCC, in May, a seventh sub-committee, on Crown Pillars, was formed.

At present, plans are well advanced for future symposia in Canada. During the period October 2-5, 1989, the 4th International Symposium on Mining with Backfill, will be sponsored by the CIM RMSCC, in Montreal. The theme of the meeting will be "Innovation in Backfill Technology". Discussions are also being held concerning a 16th Symposium in the Canadian series, hopefully to be held in the west.

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Background

- In the early 1980's a severe recession and extremely depressed metals prices threatened the viability of the Canadian Minerals industry. The key word for many mine operators was "survival".

- Recognizing that the only possibilities for improving economic performance lay in the control of production costs, the industry embarked on a massive effort of cost control and reduction.

- It was realized quickly that, of all of the components of the metals production process, the mining cycle was the least developed and, hence, offered the greatest payback possibilities from technological improvements.

- Higher production and productivity, however, can only result from faster and more efficient mining and/or larger scale openings and operations.

- Because of the stability implications, public awareness, and increased emphasis on safety standards, rock mechanics plays a pivotal role in mine design.

- The Mining Research Directorate of the Ontario Mining Association estimates that $100M will be expended on rock mechanics research in Canada this year, of which $20M will be expended in Ontario alone.

Underlying Pressures

. There is a much-increased awareness of the efforts of mining and the need for ground control.

. Mining Acts (Provincial) have been made more demanding and mine inspectors are better trained and more vigilant.

. Commissions of inquiry and a trend towards prosecutions.

. Reductions of costs to lowest possible levels while improving safety.

Networking, Communications, and Awareness

- Several of the Provincial mining associations have formed either Research Committees (British Columbia Chamber of Mines (forming), Quebec Mining Association, Saskatchewan Potash Producers' Association) or organizations (Ontario Mining Associations' Mining Research Directorate).

- Nationally, the Mining Association of Canada has formed the Mining Technology Council of Canada - with mining and mineral processing technical advisory committees.

- Through the Centres of Excellence program, MITEC has proposed a network of the Canadian Universities offering mining and mining-related programs.

- Advisory Committees have been formed for CANMET (Ministers National Advisory Committee for CANMET) and for the several Federal/Provincial Mineral Development Agreements.

- In Ontario, Laurentian, Queen's and University of Toronto are linked into a network with cross-appointed members (Kaiser, Bawden, Hoek; respectively).

- In the west, the universities of Alberta and British Columbia have proposed a centre of excellence in surface mining.

Some Key Research Thrusts:

Backfill for mines (Ontario)

Rockbursts (Ontario)

Applications for small mines (Quebec, Manitoba)

Crown Pillars (Quebec)

Evaporite Applications (Saskatchewan, New Brunswick)

Numerical modelling (national)

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