

Space in Ross?

Ross building lights up as part of a week-long symposium

By LERRICK STARR

A first of its kind, the Canada in Space Symposium opened Monday night in the Senate Chamber, reaching new heights in terms of this country's profile as an active participant in space science.

Organized by the graduate students in York's Centre for Research in Experimental Space Science (CRESS), the symposium will attempt to demonstrate that Canada does have an interesting and innovative space program despite financial restrictions.

York President H. Ian Macdonald set the universities' role in Space Science in perspective, describing Canada as a land of "three solitudes: government, industry, and the universities." But "the sky is not the limit, it's only the beginning," Macdonald said.

The second welcoming speaker, Dr. David Bell, Dean of the Faculty of Graduate Studies, pointed out that the faculty had more than 3,000 students, 700 faculty members, and 29 graduate programs in which CRESS is doing innovative work keeping us at the forefront of space research.

Dr. W. Nicholls, Director of CRESS, said he has spent "20 years in this racket" and recalled the days when a problem was solved by "just pouring money over it until it disappears."

Nicholls described the need for Canada to carry out atmospheric studies—especially of the upper atmosphere phenomena known as the Aurora Borealis or the "Northern Lights." The north magnetic pole occurs entirely within Canada's geographical boundary and adversely affects northern radio communication. Thus the rationale for active study is of direct benefit to Canada.

CRESS was organized in 1965 and has continued its research of the upper and lower atmosphere using balloons and rockets. The Black Brant rockets used in this study, have been designed and fabricated in Canada and represent an outstanding use of military weaponry for peaceful purposes.

Dr. David Low, Chairman of the Interdepartmental Committee on Space, Ministry of State for Science and Technology and guest



speaker, outlined Canada's Space budget for the years 1981 to 1985, with \$135.7 million allocated to remote sensing, \$103.6 million for communications, \$163.6 million to technological development in industry, and \$72.9 million to research space science. The total budget for the five-year period is \$475.8 million.

Low emphasized Canada's co-operative programs with the U.S. and the European Space Agency as an efficient means of exacting the greatest benefits of the space program while minimizing the overall costs per project.

Dr. Ian McDiarmid, Director of the Canada Centre for Science and Technology, presented a tour of the space program "Past-Present-Future," and assured the audience of the future commitment to space science.

The evening was capped by a leisurely slide review of the history of the Canadian Space Program presented by Agnes Kruchio, Project Archivist, punctuated by early photographs of the evening's speakers.

The Canada in Space symposium continues until tomorrow evening. Admission is free but preregistration is necessary. Telephone CRESS at 667-3833.

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Looking as if he had just stepped out of a Mercury capsule Tuesday night, Dr. Kenneth Money described how difficult it is to cope with

retching in outer space.

Tall, lanky and short-cropped, and speaking to a near-capacity audience, Money, Physiologist and Senior Scientist for the Defense and Civil Institute of Medicine, said 30 percent of spaceborne astronauts vomit, 40 percent admit to feeling sick, and that half experience some discomfort but just won't admit it.

Money, the third presenter at this week's Canada in Space symposium, described the importance of studying the inner ear function and its contribution to motion sickness. In a zero-g (weightless) environment, standard responses of the vestibular system result in disorientation, with astronauts unable to distinguish up from down.

This presents a real danger to a mission—confused astronauts have flipped switches in the direction opposite to that intended. Fortunately these errors have not jeopardized the safety of any crew to this point.

Basically a short term problem lasting two to three days, space sickness will not place a limit on the duration of a flight. The most difficult problem astronauts have to deal with is the loss of calcium from the weight-bearing bones of the body.

On Earth calcium loss and replacement is in equilibrium, but in space more calcium is lost than is returned to the bone structure. The net loss amounts to one half of one percent monthly. It is believed that two Soviet

cosmonauts have become disabled as a result of their extended missions.

Continued development of the control systems for the Canadarm is a priority, said Dr. Garry Lindberg from the National Research Council, and the Space Vision Experiment is developing methods of capturing, retrieving, and berthing of hardware in orbit.

Originally developed as a back-up to the manual system presently in use, continuous developments may soon eliminate the astronaut's participation and relegate him or her to observer status.

Using a strong light source, reflectors mounted on the target object, a television camera and a black box to make it all work, the system significantly improves the time needed to perform essential tasks which will enhance the capability of the arm to accomplish construction and manufacture of space habitats, research and development experiments and the in-space repair of satellites.

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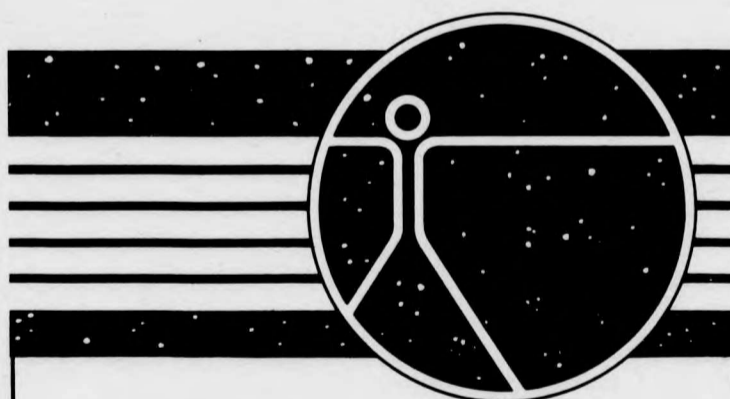
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