

SPACE MEDICINE BRANCH REPORT

Future Directions

A number of recent activities by the Administration, Congress, National Aeronautics and Space Administration (NASA) and review committees have developed recommendations for the future of the civil space program. One of the more significant of these activities was recently detailed in a publication entitled, "Report of the Advisory Committee on the Future of the U.S. Space Program," otherwise known as the Augustine Committee Report. This committee was chaired by Mr. Norman Augustine, Chief Executive Officer of the Martin Marietta Corporation. The report contained many recommendations and suggestions for the civil space program which will be briefly reviewed in this column.

The Committee noted several characteristics of what would be an ideal space program:

- A challenging set of space missions, strongly supported by the American people over extended periods because it contributes to the nation's well-being and is affordable;
- A set of space program building blocks and technology achievements that can be clearly related to the overall mission and affordability levels;
- A program that receives stable, multi-year funding, is relatively insensitive to technology setbacks or even an occasional failure while routinely delivering useful, incremental technological developments, including the occasional "breakthrough";
- An organization that continually attracts and retains its share of the nation's best talent; and
- An effort that yields visible and significant results, so that the American taxpayer can justifiably believe that the organization is accomplishing its mission efficiently, effectively, and in a fiscally responsible manner while contributing to our pursuit of knowledge, the quality of life here on Earth, and to the inspiration of all peoples.

Against this backdrop of an ideal program, the Committee felt that a national consensus was needed for the goals of the civil space program and the mechanisms to implement the program. The rest of this article will focus on recommendations made for a "space agenda," and the aspects of the report that have potential impacts for space medicine.

The issue of affordability was first addressed. The peak spending years of the space program occurred during the Apollo years when the U.S. spent 0.8% of its gross national product (GNP) on the space program. In developing a space agenda, the Committee assumed that the current civil space budget would grow at approximately 10% per year in real dollars until the end of this decade, and then be maintained at about 0.4% of the GNP. They felt this level would

enable a strong space program, but only with predictable funding and carefully managed programs.

The report then provided the specifics for a balanced space program. The first priority for spending was identified as the space science program. The recommendation was that spending for space science should be continued at or above its present fraction of the NASA budget as the budget grows.

Next, the Committee outlined plans for both a Mission to Planet Earth (MTPE) and a Mission from Planet Earth (MFPE). The Committee felt that there was an element of urgency to the MTPE to provide Earth-observing satellites, probes, etc., to form a clearer understanding of global climate change. The MFPE was focused upon exploration, where most of the manned civil space activities would take place. The long-term objective was the exploration of Mars, and the program was to be conducted on a "go as you pay" basis; tailored to the availability of funding.

The Committee next reviewed the Space Station Freedom program which they felt was the "critical next step" for the future manned space program. The Space Station program should support primarily life sciences, and secondarily microgravity experimentation in the opinion of the Committee.

New vehicles should also be designed for the space program including a new unmanned, but potentially man-rateable, heavy lift launch vehicle. A potentially two-way personnel transport module on a man-rateable expandable launch vehicle was recommended to support manned activity on the Space Station.

Finally, the Committee felt that the technology-base underlying the space program must absolutely be replenished. To that end, they recommended that spending for tech-

nology programs be increased two to three fold.

This report has included many recommendations to enable a robust, balanced civil space program, and the budget conditions under which the program would be affordable. The present and future space programs will require the talent and energy of many professionals in all disciplines of space medicine as we prepare for the future exploration of the solar system.

Scholarship in Aerospace Medicine

A \$10,000 scholarship in aerospace medicine is being offered by the International Academy of Aviation and Space Medicine with the cooperation of the Aerospace Medicine Trust (U.K.) and the airlines, TAP-Air Portugal and Air France. Applications are being accepted from young physicians who wish to attend a formal course of instruction in aerospace medicine or attachment to a recognized aerospace medicine training or research institute for instruction and/or research experience in the subject.

The scholar will be selected in August 1991 and the scholarship will be awarded for the year 1992/93. For more information and an application form, contact Air Vice-Marshal J. Ernsting, Chairman of the Scholarship Committee, at the RAF Institute of Aviation Medicine, Farnborough, Hants, GU 14 6SZ, United Kingdom. The closing date for completed applications is June 15, 1991.

FAA announces new aviation safety journal

The Federal Aviation Administration (FAA) began publishing *The Aviation Safety Journal*, a quarterly, in January 1991, which is designed to encourage an increased dedication to aviation industry safety. *The Aviation Safety Journal* will contain articles on the importance of communication between pilots and air traffic controllers, the contributions to safety made by President Dwight D. Eisenhower, who formed the FAA, the safety role of the International Civil Aviation Organization, and a review of steps taken by the FAA in 1990 to improve safety.

Interested firms and individuals who want to obtain future copies should contact Norma Lesser at U.S. Department of Transportation at (202) 267-7770.

Manual helps aviators fly North Atlantic

The Federal Aviation Administration (FAA) recently released a new manual designed to help general aviation pilots fly across the North Atlantic. The publication, called the North Atlantic International General Aviation Operations Manual, was developed by the North Atlantic Systems Planning Group in response to increasing international oceanic flights coupled with a rise in the number of general aviation fatalities and aircraft lost in the North Atlantic. The manual is available for \$2.25 from the U.S. Government Printing Office, Document 050.007.008.864 and translations into Spanish, French, and Russian can be obtained from the European office of the International Civil Aviation Organization (ICAO) in Paris.