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## SPACE MEDICINE BRANCH REPORT

### President's Message

It is amazing to realize how fast time flies! Next month AsMA is convening its annual scientific meeting in Montreal, Canada. Based on the number and quality of abstracts submitted, this year's scientific program is expected to be even more successful than last year's.

Reflecting over the events that have taken place since our last meeting in May of 2001, it is clear that the past year has been full of surprises, both good and bad. The entire world was shocked by the events of September 11, and all of us have been personally effected, in one way or another, by the everlasting consequences of the worst terrorist attacks in history. The world has not been the same since September 11, and those of us involved with aerospace activities are particularly aware of the fact that safety and security are current topics of significant public interest and concern.

In the space arena, NASA sent more than 6,000 American flags into space aboard the Space Shuttle Endeavor to honor those killed and seriously injured during the terrorist attacks. We have witnessed and applauded the progress made in the assembly and permanent occupation of the International Space Station (ISS) that is now the most complex and advanced space structure ever built. The Space Shuttle fleet celebrated its 20th anniversary after having carried more than 3 million pounds of cargo and more than 600 occupants into space. At the same time, we have heard the news about the significant cost overruns (billions of dollars) that will negatively impact ISS operations and capabilities in the foreseeable future. Having an orbiting facility able to conduct unique scientific research (basic and applied) and to learn more about living and working in space requires a fully manned ISS. However, due to the current financial constraints, this may not be possible for some time. The NASA Advisory Council (NAC) produced a report with recommendations for the management and future development of the ISS, based on the findings of the independent ISS Management and Cost Evaluation Task Force. NASA's new Administrator, Sean O'Keefe, and his senior management team face the challenge of assessing the NAC recommendations to help bring the ISS program back on track.

In other space news, the Hubble Space Telescope measured the atmosphere of a planet located in a distant solar system. The Mars Odyssey entered orbit around Mars following a 6-month, 286-million mile trip from Earth. The Mars Global Surveyor sent back to Earth more than 100,000 images of the Martian surface. NASA selected the Dawn Mission to explore the two largest asteroids in our solar system (Vesta and Ceres), and the Kepler Mission to search for Earth-like planets in other solar systems. NASA selected 126 research proposals (from a total of 259) for its Small Business Innovation Research Program that are worth \$75 million dollars. The purpose of this program is to stimulate technological innovation and increase private commercialization of such innovations. The Kennedy

Space Center awarded a \$54 million dollar contract to Dynamac Corporation to provide life science and personnel services that include medical planning operations for the Space Shuttle and ISS.

We witnessed the flight of Dennis Tito, the first paying passenger who had the opportunity to enter the last frontier at a price tag of \$20 million dollars. At the same time, we became aware of the difficulties and obstacles involved with the establishment of commercial space tourism that relies on a government-based space transportation infrastructure. In the aftermath of this significant milestone, all ISS partners have worked together to revise the Space Participant Program in anticipation of the second space tourist, Mark Shuttleworth (South Africa). As stated by Charles Walker (3-time space flyer) it is important to keep in mind that "Space travel and space operations are hard, difficult, and damn risky..." and "...training is more than just a square in your itinerary box to be checked off." Walker has called himself a "working tourist" in reference to his spaceflights as a payload specialist and has underscored the absolute need for training in preparation for space flight. While former Apollo astronaut Buzz Aldrin is an enthusiastic supporter of space tourism, former astronaut John Glenn is far less supportive and has stated that "the time for space tourism should still be off in the future," and he believes that only researchers should go into space at the present time.

We have learned about a myriad of political, financial, technological, and public safety issues that have an impact on the development and implementation of a viable manned commercial space transportation industry. But, we must not forget that there are other equally important issues involving the appropriateness of existing international space laws. The future success of the manned commercial space transportation industry (including space tourism) will also depend on our global willingness to revise and improve existing international space laws including: The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (Outer Space Treaty); The Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched in Outer Space; The Convention on International Liability for Damage Caused by Space Objects; and The Convention on Registration of Objects Launched in Outer Space; The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. (These documents are available at: [www.oosa.unvienna.org/SpaceLaw/spacelaw.htm](http://www.oosa.unvienna.org/SpaceLaw/spacelaw.htm))

According to Robert Bigelow, the political and legal hurdles of launching a private space station will be greater than the technological difficulties. He is a Las Vegas hotel tycoon who formed Bigelow Aerospace in 1999, and has promised to spend \$500 million dollars over the next 15 years to build a private space station. Such a station will be used as a destination for space tourists and as a microgravity

platform for pharmaceutical and industrial research. The viability and success of his ambitious proposal also depends on the availability of a reliable manned commercial space vehicle.

The SMB has been busy during the last year. SMB members participated in an AsMA task force that developed and published the "Medical Guidelines for Space Passengers" in October 2001. AsMA will reconvene this task force in April 2002 to revise these guidelines.

SMB members also participated in the FAA Space Medicine Program Committee that convened in August 2001 to revise the "Guidelines for Medical Screening of Commercial Aerospace Passengers," originally drafted in February of 2000. This revised draft has been submitted to the Federal Air Surgeon and the FAA Office of Commercial Space Transportation for final review.

The SMB policy committee (chaired by Dr. Phil Scarpa) drafted a proposed resolution on "Uniformity in Development of Medical Standards for Commercial Spaceflight" and submitted it to the AsMA Resolutions Committee.

The SMB is endorsing a double panel at the upcoming 73rd AsMA Annual Scientific Meeting in Montreal. SMB members and others interested in Space Medicine are encouraged to attend. More details can be found on the March SMB page of this journal.

I invite you to attend our Annual SMB Business Meeting and Luncheon on Thursday, May 9, at noon, Gallery Room, the Fairmont Queen Elizabeth Hotel in Montreal. Our guest speaker will be Dr. Jeff Davis, NASA Associate Administrator for Crew Health and Safety. Dr. Davis will speak about "Space Life Sciences: Current Status and Future Directions."

We will also announce the recipients of the 2002 Hubertus Strughold Award and the Young Investigator Award. I want to thank Dr. Smith Johnston, chair of the Strughold Award committee, and Dr. Jeffrey Myers, chair of the Young Investigator Award committee, for leading the efforts of these committees to identify worthy candidates and select the recipients of these prestigious awards.

I want to acknowledge the great work done by Dr. Chiharu Sekiguchi, SMB Vice-President and Chair of the Nominating Committee, who put together an outstanding ballot of candidates. And I wish to thank Dr. Denise Baisden for her willingness to assume the functions of SMB Historian and to recognize Dr. Wyckliffe Hoffer for his many years of dedicated service in that office.

I want to thank all Officers, Members-At-Large, Committee Chairs, and Committee Members for their dedication in support of the SMB. Dr. Phil Scarpa, SMB Past-President, deserves a special thank you for his valuable guidance and sound advice during my tenure as SMB President.

Finally, I want to express to each and every one of you my heartfelt thanks for giving me the opportunity to serve as your President, it has been a great honor and privilege.

Hope to see you all in Montreal.

**Melchor J. Antunano, M.D., M.S.**  
2001-02 President