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SPACE MEDICINE BRANCH REPORT

Annual Space Medicine Branch Meeting Report

The Annual Business Luncheon of the Space Medicine Branch (SMB) at the 69th Annual Scientific Meeting of the Aerospace Medical Association took place on Thursday, May 21, 1998 at the Seattle Convention Center, Seattle, Washington. Present at the head table were Denise L. Baisden, M.D., President; K. Jeffrey Myers, M.D., President-Elect.; Philip J. Scarpa, M.D., Secretary-Treasurer; Frank H. Austin, M.D., Custodian of the Gavel; and Charles A. Berry, M.D., Guest Speaker.

The President, Dr. Denise Baisden, began the meeting by introducing those at the front table. The President reviewed the last year which included six completed space shuttle flights including the Neurolab mission which just concluded recently. Neurolab was a spacelab mission on the shuttle dedicated to research on mechanisms related to the neurological and behavioral changes in spaceflight. She said results of this flight should start to become available over the next year and should be interesting. This past year, the U.S. space program had three more crewmembers fly on the Russian Space Station Mir. Dr. Mike Foale, Dr. Dave Wolf, and Dr. Andy Thomas. With the return of Andy Thomas on STS-91 this June, Phase I (NASA-Mir) program will be completed. Lessons learned complied from this program will be applied to the International Space Station. The upcoming year looks forward to launching the first elements of the International Space Station. Dr. Baisden said that although we are seeing some delays in the timeline, we still hope to see the launch of the first elements by the end of this year and that will certainly initiate an exciting new era in the space program.

The Secretary-Treasurer's report was given by Dr. Phil Scarpa. There are 287 members currently in the SMB as of May 8, 1998. Since April 1997, there were 16 new members and several reinstatements. Also, there has been a decrease of several members due to purging of the Branch members who are no longer Aerospace Medical Association (AsMA) members for an overall increase of 5 members from 282 in 1997. The current balance of the Branch is U.S. \$4616.10.

There were 108 ballots returned in this year's election. The results were given. The new President-Elect is Robin Dodge, M.D., the new Secretary-Treasurer is Jim Collier, and two new members-at-large are Phil Scarpa, M.D., and Smith Johnston, M.D.

Wyck Hoffer, M.D., then gave the Historian's report. "Everybody likes to know the history of a group, but nobody likes to contribute to it." Dr. Hoffer said that over the years he has pleaded with the membership who are making the history to send their portions of it to our central repository. Since many people now get e-mail, Dr. Hoffer said he will "blitz" the membership using e-mail to make an appeal for historical and current history-making materials or information.

The President mentioned that the Branch

has established a History Committee, with the Historian as chair. We look forward to having the committee help to collect some of the historical items of the SMB. Other activities of the SMB over the past year included providing input to AsMA from our Long Range Planning Committee chair, Dr. Robin Dodge, on the AsMA Goals and Guiding Principles being developed by AsMA. We are also working on a Position Paper addressing the need for more Space Life Sciences Research within the period of inactivity planned from the conclusion of Neurolab to the first time research can be performed on the Space Station. Through the work by our Policy Committee, chaired by Melchor Antuñano, M.D., a Proposed Resolution was drafted and will be submitted to the AsMA Resolution's Committee concerning the need for developing the regulatory requirements for manned commercial aerospace operations.

Jeff Myers, M.D., of the Awards Committee then gave his report. He first wished to thank all of the members of the Awards Committee for their help in evaluating and selecting the award winners. This year's Young Investigator Award was presented to Jeffrey Jones, M.D., for his research using chemicals to protect cells from potential space radiation. There were 77 candidates of which 14 finalists were chosen. Of the 14, two honorable mentions and one winner were selected. The finalists were invited to, and introduced at, the business luncheon. Dr. Myers then presented the Hubertus Strughold Award to Valery Polyakov, M.D.,

cosmonaut-researcher, deputy director of the Institute of Biomedical Problems in Moscow, Russia, and primary supervisor for medical support for the space station Mir. He was given the Strughold Award for his world record 14 months in space, his life-long dedication to space medicine and his major contributions to long-duration spaceflight. With regrets Dr. Polyakov was unable attend the meeting, so his award will be sent to him.

Frank Austin, the Custodian of the Gavel, has requested the Gavel to be passed onto someone else. Dr. Hoffer has agreed to accept it. Dr. Austin stated that the Custodian's primary responsibility is to bring to, or make sure someone brings, the gavel to every AsMA meeting for the SMB. Dr. Austin then gave a brief history of the Branch's Gavel which encompasses the last 35 years and which included a spaceflight aboard the Space Shuttle *Columbia* on STS-58, Spacelab Life Sciences-2, in 1993.

The President also wished to thank our Corporate sponsor, EG&G, Inc., for their generous donation to the Branch this year and for the efforts of Dr. Paul Humbert in arranging this support.

Charles A. Berry, M.D., who was one of the speakers at the Branch sponsored panel on Space Medicine History, which was very interesting and well attended, was the luncheon's Guest Speaker. Dr. Berry is a former NASA flight surgeon during the Mercury, Gemini, and Apollo Space Programs. He also
(See *SPACE MEDICINE*, p. 926)



SPACE MEDICINE BRANCH GAVEL—The gavel was flown aboard Space Shuttle *Columbia*, STS-58, October 18–November 1, 1993. It was then presented to Dr. Frank Austin, custodian of the gavel, by Rhea Seddon, M.D., astronaut.



The 1998 Partnership in Education Award

The 1998 Partnership in Education Award was presented to Ms. Cindy Tierney and Ms. Sandra Everlove from Franklin High School in Seattle, WA. The award was presented by Lt. Col. Jeff Sventek, President of the Aerospace Physiology Society. This award is sponsored by the Aerospace Physiology Society and was created in 1993 to recognize elementary and secondary school teachers who were utilizing non-traditional or unique teaching methodologies to promote the advancement of life science education.

Ms. Tierney and Ms. Everlove developed and implemented a Peer Teaching Program at Franklin High School. Through the program, high school students research and develop basic science experiments and lesson plans which they then use to teach elementary students during special school sponsored science nights. The Franklin High students have learned the challenges of explaining complex concepts to elementary school students, who at times have difficulty grasping abstract scientific principles. At the same time, the peer teaching concept has ignited interest in the elementary students, many of whom are receiving their introduction to the wonders of science. The program has succeeded in bridging the gap between teacher and student on two different levels, opening doors for all the students.



ORDER OF AEROMEDICAL MERIT—The Army Order of Aeromedical Merit Medals were presented by LTC Daniel Fitzpatrick, MC, USA, president of the U.S. Army Aviation Medical Association. (Top photo) LTC Fitzpatrick presents the medal to LTC Wallace J. Seay, Jr., while recipients COL Wade D. Baldwin and COL Richard Broyles (far right) look on. (Bottom photo) LTC Fitzpatrick congratulates COL John M. Blough, MC, USA (right). Other recipients, not present, were COL David J. Wehrly and LTC Timothy Toomey.



SPURGEON NEEL AWARD FOR FLIGHT SURGEON OF THE YEAR—Maj. Gen. Spurgeon H. Neel, Jr., USA, (Ret.) presents a certificate to CAPT Troy R. Johnson, MC, USA (left).



JOSEPH L. HALEY, JR. LITERARY AWARD—Michael J. Tipton, M.Sc., received the Joseph L. Haley, Jr. Literary Award for his article, *An Examination of Two Emergency Breathing Aids for Use During Helicopter Underwater Escape* (Aviat Space Environ Med 1997; 68: 907-14). COL Malcolm Braithwaite, RAMC (right) accepts the award from LTC Fitzpatrick.

(SPACE MEDICINE, from p. 925) served as Chief of the Medical Operations Office, Director of Medical Research and Operations for the Manned Spacecraft Center (JSC), and Director of Life Sciences at NASA Headquarters in Washington, DC. He is a past president of AsMA and of the SMB. He is the recipient of over 40 national and international awards, including the Strughold Award from the SMB in 1967, and was nominated for the Nobel Prize in Medicine and Physiology in 1979 and 1980. He has also authored over a hundred scientific papers, books and chapters. Dr. Berry gave his talk entitled "Space Medicine Then (60's and 70's) And The Future" in which he reviewed the Space Program and the various, but not so well known problems and obstacles that had to be overcome to get us to the moon. He also reviewed what lies ahead for the future.

Following the guest speaker, Dr. Jeff Myers, as President-Elect, was installed as the new President of the Space Medicine Branch. Dr. Myers presented the Past President's Plaque to outgoing President Dr. Baisden. Dr. Myers thanked Dr. Baisden for her work and encouraged all the members to be active in the Branch and in AsMA. He adjourned the meeting by paraphrasing a famous quote from President John F. Kennedy that "we do these and the other things, not because they are easy but because they are hard."

In May 1973, three men blasted off from Cape Canaveral and into history. They were the first crew of Skylab—a laboratory and workshop orbiting 235 nautical miles (435 kilometers) above the Earth.

The Skylab program was dedicated to increasing our knowledge and understanding of space's unique environment as well as the Earth's importance to the well-being of humans. Skylab was also a major step in manned spaceflight. It created a bridge between the flights of the 1960s and the long-duration spaceflights of the future—including the International Space Station.

Three separate crews lived on Skylab from 28 to 84 days over an 8-month period. While in orbit, experiments were conducted to:

- increase our knowledge of the sun and its importance to Earth and the existence of life on the planet;
- increase our knowledge of the biomedical functions of living organisms, human and other, and to determine the importance of Earth conditions to these functions;
- develop techniques for observing Earth phenomena from space in the areas of agriculture, forestry, geology, air and water pollution, land use and meteorology, and the influence humans have had on these elements;
- develop improved techniques for space operations in the areas of crew habitability, crew/vehicle interrelationships, and space vehicle structure and materials;
- evaluate the equipment necessary for successful habitation in space.

In Skylab's biomedical program, the astronauts studied the importance of gravity to human physiology. Until this time, there had been no studies on the effect of prolonged exposure to microgravity. Skylab allowed a long-term evaluation of phenomena such as loss of body fluid, bone calcium and muscle mass. The biomedical program consisted of experiments in the following areas:

- the effects of microgravity on nutritional requirements and the attendant gain or loss of the body's biochemical constituents;
- the role of microgravity in the body's metabolic effectiveness in doing mechanical work;
- the effects of long-term exposure to microgravity on the cardiovascular system and its response to various workloads;
- the behavior of blood cells, body fluid compartments, and body immunity in a microgravity environment;
- the role of microgravity on psychomotor efficiency and the performance of useful tasks;
- the responses of the vestibular system in the absence of gravity;
- the influence of microgravity on circadian rhythms.

Each Skylab crew consisted of a commander, a science pilot and a pilot. The first crew, launched on May 25, 1973, included Charles Conrad, Paul Weitz, and AsMA member **Joseph Kerwin**. Their flight lasted for 28 days. The second crew, Alan Bean, Owen Garriott, and Jack Lousma, commenced its flight on July 28, 1973, and stayed in orbit for 60 days. The last flight, with Gerald Carr, Edward Gibson, and William Pogue, launched on November 16, 1973 and lasted 84 days.

Skylab fell from orbit on July 11, 1979.