

Send information for publication on this page to: Richard T. Jennings, M.D.
NASA/JSC
Mail Code SD26
Houston, TX 77058

SPACE MEDICINE BRANCH REPORT

Space Medicine Branch: Your Step to the Future for All Mankind

By David A. Tipton, M.D.

I would like to extend an invitation to all those nonmembers reading this article to consider joining the Space Medicine Branch of the Aerospace Medical Association. What is the Space Medicine Branch? According to our Constitution and By-Laws, it is an organization dedicated to "advanc[ing] the science and art of the life sciences with special reference to problems existing at high altitudes and [in] space." Who is eligible to join the organization? Any "Member . . . of the Aerospace Medical Association . . . [who has] . . . demonstrated a genuine interest in forwarding the science of space medicine." So the prime question, then, is: What constitutes a genuine interest in forwarding the science of space medicine? My answers to that question follows.

To expand mankind's frontiers, we are currently planning exciting new projects such as Space Station, return to the Moon, and Mars Mission. But these are only essential milestones of man's thrust into space. The pioneering nature of us earthlings demands that we pursue these, and we will prevail as the above projects slowly evolve into permanent manned colonization of space, the Moon, and the nearby planets and their moons.

This evolution, in turn, will bring exciting and new challenges to space medicine. In addition to the current work to explore human physiology in the microgravity environment, with special focus on vestibular, cardiovascular, musculoskeletal, and immunological disciplines, unanticipated and undreamed vistas will be opened. Broad new topics for exploration will be artificial gravity, hypogravity, obstetrics, and pediatrics, just to name a few. And, with time, space-based hospitals and variable gravity rehabilitation facilities undoubtedly will be built.

There will come a time when human beings are born off their planet of origin and will pass their whole lives without ever coming to planet Earth. Conceivably some may never experience the natural gravity of any planet. Will this be in our lifetimes? Probably few, if any of us, will see these latter developments, but hopefully most of us will realize much of the earlier projections and will enjoy some of their fruits.

Of course, all these projects are stepping stones, the following ones necessarily building on their predecessors. But the fundamental base from which these are all built is human dreams and aspirations. We can have no colonies in space without human desire. We can have no settlements of the Moon, Mars, and beyond without human yearning. And from that yearning will come plans, ac-

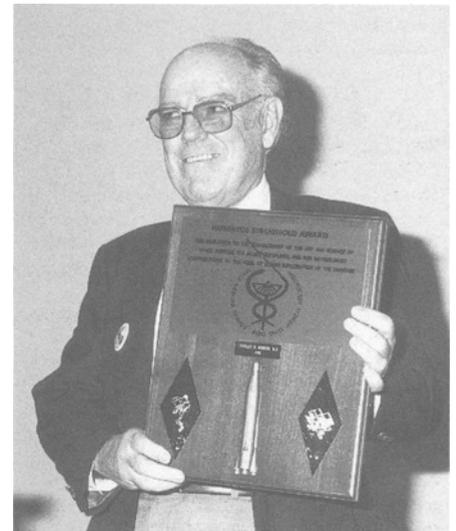
tions and reality; from that desire will come the future.

So who are those with a genuine interest in forwarding the science of space medicine? Well, they are certainly the men and women who work in the field of space medicine, who work with NASA, ESA, DLR, NASDA, the Soviet space agency, and other

countries' space related agencies (e.g., Canada), as well as private industry and academia. But also included are those who live the dream in their hearts. Finally, there will be those who aspire to the goals, those who perform the tasks, those who contribute to the resources, those whose interests led them to read this article; they are the ones who have demonstrated a genuine interest in forwarding the science of space medicine.



SPACE MEDICINE BRANCH AWARDS—The Best Paper by a Young Investigator Award was presented to two winners this year, Jack Simanonok, M.D. and Joseph Essex. Dr. Simanonok's paper was No. 181, "A Theoretical Comparison of Shuttle Treatment Modalities with an Intravenous Perfluorocarbon Emulsion in Acute Decompression Sickness." Mr. Essex's paper was No. 64, "The Effect of Long Term Strength and Endurance Training on Cardiovascular Response to 70° Head Up Tilt." Pictured left to right are Ted Trumbull, representing Kelsey-Seybold Clinic, P.A., Dr. Simanonok, Mr. Essex, and James M. Vanderploeg, M.D., representing KRUG Life Sciences Inc.



STRUGHOLD AWARD—Stanley R. Mohler, M.D. receives the Space Medicine Branch's Hubertus Strughold Award for dedication to the advancement of the science and art of space medicine, the allied sciences, and manned space flights.



NASA AWARDS—(Left photo) 1991 Honorary Member of the Society of NASA Flight Surgeons is Claudette Gage (left). Presenting the award is Michael A. Berry, M.D., (right) President of the Society. (Right photo) The W. Randolph Lovelace II Memorial Award was presented by Michael A. Berry, M.D. (left) to Charles A. Berry, M.D. (right).

Biographies of the LSBEB Award Winners

The Life Sciences and Biomedical Engineering Branch (LSBEB) gave four awards at the AsMA annual meeting this year. They were presented by Lt. Col. Ronald C. Hill, USAF, BSC, President of the LSBEB. The following are brief biographies of the award winners.

Ross McFarland Student Award

Thomas J. Mullen received the 1991 Ross McFarland Student Award for his paper entitled, "Transfer Function Analysis of Autonomic Activity During Motion Sickness." The award is sponsored by Systems Research Laboratories, Inc.

Mr. Mullen is currently working toward a Ph.D. in the Harvard-MIT Division of Health Sciences and Technology. His B.S. and M.S. were in electrical engineering from Worcester Polytechnic Institute and Massachusetts Institute of Technology, respectively. He spent 3 years working in the man-vehicle laboratory at MIT. Mr. Mullen is originally from Allendale, NJ.

R&D Innovation Award

Joseph P. Cammarota received the 1991 R&D Innovation Award given by the LSBEB. The award is sponsored by ILC Dover, Inc. to honor an individual who has demonstrated innovative life sciences and biomedical engineering research as related to the design or development of aerospace medical equipment.

The honor was based upon Mr. Cammarota's work at the Naval Air Development Center (NADC) Aerial Combat Maneuvering Enhancement Laboratory, where he is an electronics engineer. It was there that he effectively applied his considerable expertise in digital signal processing and computer systems integration to the exceptional improvement of the capabilities and functioning of the NADC human-use centrifuge and its associated data collecting and documentation systems. Among his many contributions was a complex and realistic aerial combat environment simulation system which greatly enhances the understanding of the behavioral and physiological aspects of the modern fighter pilot's reaction to acceleration-related stress.

A native of Philadelphia, PA, Mr. Cammarota received his B.S.E.E. from Drexel University in 1982.

A. Howard Hasbrook Award

LTC Dennis F. Shanahan, MC, USA received the 1991 A. Howard Hasbrook Award from the LSBEB. The award, sponsored by United States Aviation Underwriters, recognizes an individual who has provided noteworthy data or design with respect to safety, survivability or crashworthiness relevant to aircraft or space vehicles. Dr. Shanahan was selected for his studies of military helicopter crashworthiness and injury protection. One report of the work, "Kinematics of the U.S. Army Helicopter Crashes: 1979-1985" appeared in *Aviation, Space, And Environmental Medicine*, (1989; 60:112-21).

Dr. Shanahan is currently a lieutenant colonel in the U.S. Army Medical Corps serving as Director, Biodynamics Research Division, US Army Aeromedical Research Laboratory, Fort Rucker, AL. He continues to direct research on crashworthiness and life support equipment design. Dr. Shanahan received a B.S. from Middlebury College in Vermont. He graduated from medical school at Washington University in St. Louis, MO, and has an MPH from Johns Hopkins University in Baltimore, MD.

Professional Excellence Award

Dr. Kenneth G. Ikels received the 1991 Professional Excellence Award given by LSBEB. The award, sponsored by Smith-Kline Beecham Pharmaceuticals, was given in recognition of his distinguished research career at the Crew Technology Division, Armstrong Laboratory, Brooks Air Force Base, TX.

During Dr. Ikels' 32-year career at the USAF School of Aerospace Medicine (USAFSAM), he demonstrated outstanding

accomplishment and acumen for research in several scientific fields, including physiology, biophysics, analytical chemistry, and chemical engineering. Dr. Ikels' bibliography includes over 20 publications, including refereed journal articles and technical reports.

As a recognized expert in onboard oxygen generation, Dr. Ikels was invited to present his work at an international symposium on Advanced Aircraft Oxygen Systems, part of a five-nation meeting, including the United States, Canada, United Kingdom, Australia, and New Zealand. Dr. Ikels presented his experimental work in three areas: "The Effects of Engine Bleed Air Contaminants on Oxygen Concentrators," "Sorption Studies of Chemical Warfare Agents on Molecular Sieves," and "Oxygen Concentration by Membrane Permeation."

Dr. Ikels received his B.S. and M.A. degrees in chemistry from Southwest Texas State University, and his Ph.D. in physical chemistry with a minor in mathematics from the University of Texas at Austin. He currently resides in New Braunfels, TX.



LSBEB AWARDS—1) (Upper left photo) The Ross McFarland Student Paper Award was presented to Thomas J. Mullen, M.S., for his paper "Transfer Function Analysis of Autonomic Activity During Motion Sickness" (abstract #125). The award was sponsored by Systems Research Laboratory. Pictured left to right are Phillip E. Whitley, Ph.D., incoming President of LSBEB, Mr. Mullen, Karol A. Ondick, representing the sponsor SRL, and Lt. Col. Ronald C. Hill, USAF, BSC, President of the Life Sciences and Biomedical Engineering Branch. 2) (Upper right photo) The R&D Innovation Award was presented to Joseph P. Cammarota, Jr. The award was sponsored by ILC Dover. Pictured left to right are Dr. Phillip E. Whitley, Mr. Mullen, Karol A. Ondick, representing the sponsor ILC Dover, and Lt. Col. Ronald C. Hill. 3) (Lower left photo) The A. Howard Hasbrook Award was presented to LTC Dennis F. Shanahan, MC, USA (center). The award, sponsored by the United States Aviation Underwriters, was presented to LSBEB President Lt. Col. Ronald Hill (right), with Dr. Phillip Whitley looking on. 4) (Lower right photo) The Professional Excellence Award was presented to Kenneth G. Ikels, Ph.D. Accepting the award for Dr. Ikels is Lt. Col. Ronald Hill (right), from Don Smith (center) representing the sponsor SmithKline Beecham Pharmaceuticals, while Dr. Phillip Whitley (left) looks on.