

# SPACE MEDICINE BRANCH REPORT

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## Awards of the Space Medicine Branch

At the Scientific Meeting of the Aerospace Medical Association in May 1997 the Space Medicine Branch (SMB) presented two awards, the Hubertus Strughold Award, and the Young Investigator Award. Neither award winner was able to attend the business luncheon to receive their awards. The Strughold Award winner, Shannon Lucid, Ph.D., had her plaque accepted for her by David F. Ward, M.D. and the SMB Young Investigator Award winner, Terry E. Martin, M.B., B.S., had his plaque accepted by one of his colleagues, Alison Eak.

### The Young Investigator Award

The Young Investigator Award is presented to an investigator who is the first author of an outstanding paper (slide or poster session) in the area of aviation and/or space medicine presented at the current or previous scientific meeting of the Aerospace Medical Association. In addition to being the first author, the investigator must be presenting at the annual scientific meeting for the first time. The Young Investigator Award subcommittee nominates these candidates and submits them to the Branch's Executive Committee which selects the recipient(s) by a majority vote. The award is presented at the annual business luncheon of the Space Medicine Branch. This year's Young Investigator Award subcommittee members were Drs. John Darwood, Dimetri Economos, Rainer Effenhauser, Dwight Holland, Smith Johnston, K. Jeffrey Myers (Chair), Annette Sobel, David Ward, and Mr. Lloyd Tripp.

### Terry E. Martin, M.B., B.S.

Dr. Terry E. Martin was awarded the SMB Young Investigator Award for his paper entitled "Fractionation of Conscious Processes Using Functional Magnetic Resonance Imaging." Dr. Martin is the Senior Medical Officer in the Neurosciences Resource Group at the Defence Evaluation and Research Agency, Centre for Human Science, Farnborough, United Kingdom. Dr. Martin is both an aviator and scientist. He developed the idea for this research from a desire to explain the processes of the human brain during tasks imposed by operational settings which he has experienced as an aviator.

Dr. Martin proceeded to develop this project being involved in every aspect of the effort from inception through completion. He was able to demonstrate in this study that several regions of the brain, and not a single location, are activated during complex mental and sensorimotor tasks while others are inhibited. Interaction between these regions were also observed, suggesting neural activity that is coordinated and networked. This technology can be applied to improving aircrew selection, safety, training and cockpit design. Potential applications for this technology also extend beyond the field of aviation to broader areas such as career development, whereas a subjects'

neural network activity could be studied under different types of tasks and provide information towards success in a particular type of work. Hidden talents might be discovered and developed.

Such original thought, complete involvement, resourcefulness, and applicability as shown in Dr. Martin's work are important components of the ideals which the Young Investigator Award represents.

There were 120 contestants in this year's competition. Besides the winner, three papers received honorable mention: Vadim Gushin, M.D., Institute for Biomedical Problems, Moscow, Russia; Xiaohui Zheng, M.D., Institute of Aviation Medicine, Beijing, China; and Edward Davis, M.H.S., Johns Hopkins University, School of Hygiene and Public Health and Johns Hopkins School of Medicine, Baltimore, MD, and the U.S. Army Research Lab, Aberdeen Proving Ground, MD. Other finalists included: Al Rossum,



**YOUNG INVESTIGATOR'S AWARD**--Alison Eak (left) accepts the Young Investigator's Award for Terry E. Martin, M.D., from Smith Johnston, M.D., representing the chair of the Awards Committee. Dr. Martin's paper was entitled, "Fractionation of Conscious Processes Using Functional Magnetic Resonance Imaging." The award is underwritten by EG&G, Inc., and the McDonnell-Douglas Corp.



**STRUGHOLD AWARD**--The Hubertus Strughold Award was presented to Shannon Lucid, M.D., by Denise Baisden, M.D., chair of the Strughold Award subcommittee. Accepting for Dr. Lucid is David Ward, M.D.

M.D., NASA-Johnson Space Center, TX; Donato Borrillo, M.D., Wright State University, OH; Osamu Tokumaru, M.D., and Kenichi Kaida, M.D., Japan Air Self Defense Force, Japan; Kan Kuriyama, NASA-Ames Research Center, CA; Paul Benni, Ph.D., Rutgers University, NJ; Major A. J. Eke, UK; Andrew Blaber, Ph.D., University of Western Ontario, Canada; and V. Yilmaz, M.D., Turkey.

### Hubertus Strughold Award

The Hubertus Strughold Award is presented each year for dedication and outstanding contributions in advancing the frontiers of Space Medicine, for sustained contributions to further the goals of the Space Medicine Branch and to whom best exemplifies the ideals of Hubertus Strughold. The recipient of the award is selected by the Strughold Award subcommittee. This year's Hubertus Strughold Award subcommittee members were Drs. Denise Baisden (Chair), Bradley Beck, Rainer Effenhauser, Wyckliffe Hoffer, Smith Johnston, Irene Long, David McKenas, K. Jeffrey Myers, Philip Scarpa, Stanley White, and Mr. Lloyd Tripp. Nominations for this award are made by the members of the Branch's Executive Committee and by former recipients of the Hubertus Strughold Award. The nominations are submitted 90 days before the annual meeting. The award is presented at the annual business luncheon of the Space Medicine Branch.

### Shannon W. Lucid, Ph.D.

Born during WWII of missionary parents in Shanghai, China, Dr. Lucid grew up in Bethany, OK, which she considers her hometown. Dr. Lucid graduated from Bethany High School in 1960; received a bachelor of science degree in chemistry from the University of Oklahoma in 1963, and master of science and doctor of philosophy degrees in biochemistry from the University of Oklahoma in 1970 and 1973, respectively.

Dr. Lucid's experience includes a variety of academic assignments, such as teaching assistant at the University of Oklahoma's Department of Chemistry from 1963 to 1964; senior laboratory technician at the Oklahoma Medical Research Foundation from 1964 to 1966; chemist at Kerr-McGee, Oklahoma City, OK, 1966 to 1968; graduate assistant at the University of Oklahoma Health Science Center's Department of Biochemistry and Molecular Biology from 1969 to 1973; and research associate with the Oklahoma Medical Research Foundation in Oklahoma City, from 1974 until her selection to the astronaut candidate training program.

Dr. Lucid became trained as a pilot and is now commercial, instrument, and multi-engine rated. Selected by NASA in January 1978, Dr. Lucid became an astronaut in August 1979. Some of her technical assign

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ments have included: the Shuttle Avionics Integration Laboratory (SAIL); the Flight Software Laboratory, in Downey, CA, working with the rendezvous and proximity operations group; Astronaut Office interface at Kennedy Space Center, FL, participating in payload testing, Shuttle testing, and launch countdowns; spacecraft communicator (CAPCOM) in the JSC Mission Control Center during numerous Space Shuttle missions; Chief of Mission Support; and Chief of Astronaut Appearances.

Dr. Lucid has served as a mission specialist on the following space shuttle missions: STS-51G (June 17-24, 1985), STS-34 (October 18-23, 1989), STS-43 (August 2-11, 1991), and STS-58 (October 18 to November 1, 1993).

STS-51G was a 7-day mission during which the crew deployed communications satellites for Mexico (Morelos), the Arab League (Arabsat), and the United States (AT&T Telstar). They used the Remote Manipulator System (RMS) to deploy and later retrieve the SPARTAN satellite which performed 17 hours of x-ray astronomy experiments while separated from the Space Shuttle. In addition, the crew activated the Automated Directional Solidification Furnace (ADSF), six Getaway Specials, and participated in numerous biomedical experiments. The mission was accomplished in 112 orbits of the Earth, traveling 2.5 million miles in 169 hours and 39 minutes.

STS-34 was a 5-day mission during which the crew deployed the Galileo spacecraft on its journey to explore Jupiter, operated the Shuttle Solar Backscatter Ultraviolet Instrument (SSBUV) to map atmospheric ozone, and performed numerous secondary experiments involving radiation measurements, polymer morphology, lightning research, microgravity effects on plants, and a student experiment on ice crystal growth in space. The mission was accomplished in 79 orbits of the Earth, traveling 1.8 million miles in 119 hours and 41 minutes.

STS-43 was a 9-day mission during which the crew deployed the fifth Tracking and Data Relay Satellite (TDRS-E). The crew also conducted 32 physical, material, and life science experiments, mostly relating to the Extended Duration Orbiter and Space Station Freedom. The mission was accomplished in 142 orbits of the Earth, traveling 3.7 million miles in 213 hours, 21 minutes, 25 seconds.

STS-58, a record-duration 14-day mission, was recognized by NASA as the most successful and efficient Spacelab flight flown by NASA. The STS-58 crew performed neurovestibular, cardiovascular, cardiopulmonary, metabolic, and musculoskeletal medical experiments on themselves and 48 rats, expanding our knowledge of human and animal physiology both on Earth and in spaceflight. In addition, they performed 16 engineering tests aboard the Orbiter Columbia and 20 Extended Duration Orbiter Medical Project experiments. The mission was accomplished in 225 orbits of the Earth, traveling 5.8 million miles in 336 hours, 13 minutes, 1 second. In completing this flight Dr. Lucid logged 838 hours, 54 minutes in space which made her America's female space traveler with the most hours in space.

Most recently, Dr. Lucid served as an engineer/researcher on Russia's Space Station Mir. Launching on March 22, 1996, aboard STS-76 and returning on September 26, 1996, aboard STS-79. She performed numerous life science and physical science experiments during the

course of her stay aboard the Russian Space Station. In completing this mission, Dr. Lucid traveled 75.2 million miles in 188 days.

A member of five spaceflights encompassing six separate shuttle missions and a member of the crew of the Space Station Mir, Dr. Lucid has logged a total of 5,354 hours (223 days) in space giving her the U.S. records for both single mission, total spaceflight, and the world record for spaceflight by a woman.

Dr. Lucid was selected for the Strughold Award in recognition of her personal contributions to the field of Space Medicine through her vast time in space and for her dedication in gathering extensive data on medical and life science experiments during her record-setting career.

## Join the ANS

Join the Aerospace Nursing Section (ANS) by submitting dues of \$10.00 along with your address, degrees or military rank (as it applies), to the ANS Treasurer: AEROSPACE NURSING SECTION c/o Stacy Alger, LtCol, USAF, NC (Ret) 1818 Highway 17 North, # 236 Surfside Beach, SC 29575

Also send Stacy any change of address you may have throughout the year, so you will receive any special ANS mailings that are done. We do not always get the address changes that are submitted to AsMA, since Stacy is maintaining the data base for ANS membership.

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For the patch collectors: You may request your Aerospace Nursing Section patch from the ANS Treasurer, Constance Alger. These patches are \$6.00  
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Brooks Heritage Foundation, Inc.  
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