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SPACE MEDICINE BRANCH REPORT

Awards of the Space Medicine Branch

At the Scientific Meeting of the Aerospace Medical Association in May 2000 the Space Medicine Branch presented two awards, the Hubertus Strughold Award, and the Young Investigator Award. The Strughold Award winner was Dr. Story Musgrave, and the Young Investigator Award winner was Dr. Carla Ledderhos.

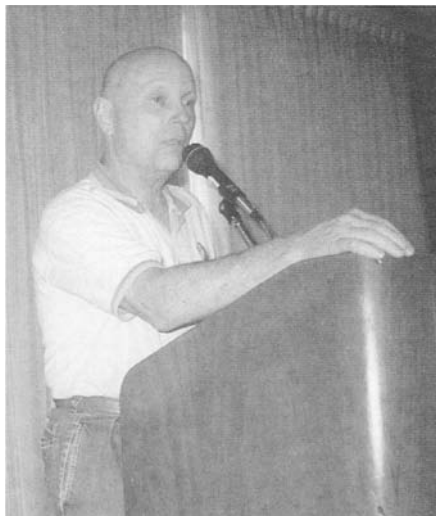
Hubertus Strughold Award

Story Musgrave, M.D.

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.

Story Musgrave, M.D., retired from the NASA astronaut program after a distinguished career spanning over 3 decades. Dr. Musgrave has logged a record 278 Earth orbits, traveled over 7 million miles in 17 d, 15 h, 53 min. Dr. Musgrave received a bachelor of science in mathematics and statistics from Syracuse University (1958), a master of business administration in operations analysis and computer programming from the University of California at Los Angeles (1959), a bachelor of arts in chemistry from Marietta College (1960), a doctorate in medicine from Columbia University (1964), a master of science in physiology and biophysics from the University of Kentucky (1966), and a master of arts in literature from the University of Houston (1987).

Dr. Musgrave entered the U. S. Marine



STRUGHOLD AWARD--Story Musgrave, M.D., received the Hubertus Strughold Award during the SMB Luncheon.

Corps in 1953, serving as an aviation electrician and instrument technician, and as an aircraft crew chief while completing duty assignments in Korea, Japan, Hawaii, and aboard the carrier USS WASP in the Far East.

Dr. Musgrave served a surgical internship at the University of Kentucky Medical Center in Lexington from 1964-65, and continued there as a U. S. Air Force post-doctoral fellow (1965-66), working in aerospace medicine and physiology, and as a National Heart Institute post-doctoral fellow (1966-67), teaching and conducting research in cardiovascular and exercise physiology. From 1967-89, he continued clinical and scientific training as a part-time surgeon at the Denver General Hospital and as a part-time professor of physiology and biophysics at the University of Kentucky Medical Center.

Selected as a scientist-astronaut by NASA in August 1967, he completed astronaut academic training and then worked on the design and development of the Skylab Program. He was the backup science-pilot for the first Skylab mission, and was a spacecraft communicator (CAPCOM) for the second and third Skylab missions. Dr. Musgrave participated in the design and development of all Space Shuttle extravehicular activity equipment including spacesuits, life support systems, airlocks, and manned maneuvering units. From 1979-82, and 1983-84, he was assigned as a test and verification pilot in the Shuttle Avionics Integration Laboratory at the NASA-Johnson Space Center. He served as CAPCOM for several space shuttle missions and was a mission specialist and payload commander on several other missions. Dr. Musgrave was the first to conduct a Space Shuttle extravehicular activity (EVA) to test the new space suits, and later performed EVAs to help repair the Hubble telescope.

Dr. Musgrave has flown 17,700 h in 160 different types of civilian and military aircraft, including 7500 h in jet aircraft. He has earned FAA ratings for instructor, instrument instructor, glider instructor, and airline transport pilot, and U.S. Air Force Wings. An accomplished parachutist, he has made more than 500 free falls -- including over 100 experimental free-fall descents involved with the study of human aerodynamics.

He is a member of numerous organizations including the Civil Aviation Medical Association, the Flying Physicians Association, the International Academy of Astronautics, the Marine Corps Aviation Association, the National Aeronautic Association, the National Aerospace Education Council, the National Geo-graphic Society, the United States Parachute Association, Alpha Kappa Psi, Omicron Delta Kappa, Phi Delta Theta, and Beta Gamma Sigma. He is the recipient of numerous awards including the National Defense

Service Medal, Outstanding Unit Citation as a member of the United States Marine Corps Squadron VMA-212, USAF Post-doctoral Fellowship, National Heart Institute Post-doctoral Fellowship, and Reese Air Force Base Commander's Trophy, and the NASA Distinguished Service Medal; he received the Flying Physicians Association Airman of the Year Award twice and NASA Space Flight Medals on seven occasions.

The author of 25 scientific papers in the areas of aerospace medicine and physiology, temperature regulation, exercise physiology, and clinical surgery, Dr. Story Musgrave was selected for this year's Strughold Award in recognition of his outstanding contributions and life-long dedication to the advancement of the field of Space Science and Space Medicine.



LUNCHEON SPEAKER--Melchor Antunano, M.D., was the luncheon speaker at during the SMB meeting.



PAST PRESIDENT'S PLAQUE--Philip Scarpa, M.D., incoming SMB President, presents Dr. Robin Dodge with the past president's plaque.

Young Investigator Award

Carla Ledderhos

The Young Investigator Award is presented to an investigator just beginning his or her career in aerospace medicine who is the primary author of an outstanding paper (slide or poster session) in the area of aerospace medicine presenting at the current scientific meeting of the Aerospace Medical Association for the first time.

Dr. Carla Ledderhos, who is from the Institute of Physiology of the Ernst-Moritz-Arndt-University Greifswald, Greifswald, Germany, was awarded the Space Medicine Branch Young Investigator Award for her outstanding paper entitled "Antidiuresis in, and Reduced Tolerance of, Hypobaric Hypoxia in Young Men with Primary Hypertension."

It is known that primary hypertensive individuals have enhanced reactivity and reflex effects of the arterial chemoreceptors as well as an exaggerated response of the sympathetic nervous system in acute hypoxic hypoxia. But it was not known whether these phenomena would influence those individuals to tolerate sustained hypoxic hypoxia. Her research studied 18 young men, ages 20-27 yr, with parental hypertension and blood pressures defined with 24-h ambulatory blood pressure values in the upper normal or

in the borderline hypertensive range served as the experimental group. Age-matched young men (n=18) without any family background of essential hypertension and normotensive 24-h ambulatory blood pressure values served as controls. All subjects experienced both a control and an altitude experiment, in which they underwent scheduled fluid drinking each hour but no eating. In the altitude experiment the subjects were exposed to hypobaric hypoxia at an altitude of 4200 m for 8 h. Cardiorespiratory, renal and endocrinological parameters were determined at rest in supine position. Dr. Ledderhos found that all subjects tolerated well the control experiment and all control (normotensive) subjects tolerated well the 8-h altitude hypoxia experiment. However, beginning after 4 h of altitude exposure, 8 out of 18 (44%) experimental group subjects with parental essential hypertension/upper normal or borderline blood pressures had to be removed from the hypobaric chamber for symptoms of mild acute mountain sickness (headache, nausea and vomiting).

Additionally, she found that antidiuresis preceded these symptoms. When compared to normotensives, experimental group subjects had higher and more stable cardiorespiratory parameters at altitude. Dr. Ledderhos concluded that her data supported the hypothesis that primary hypertensive young men in acute high-altitude hypoxia have

strong respiratory and cardiovascular responses due to high excitability of their arterial chemoreceptors. These subjects were also less able to tolerate sustained high-altitude hypoxia due to a decreased ability to develop high-altitude natriuresis and diuresis, which was probably a result of an exaggerated arterial response.

There were 130 candidates in this year's award competition. In addition to the winner, the following individuals were finalists: Vidal Essebag, McGill University, Montreal, Quebec, Canada; Dale Tidaback, USAF/SAM, Brooks AFB, San Antonio, TX; Gustavo Di Giovan Battista, La Plata National University, La Plata, Argentina; Melanie Hawkins, Civil Aeromedical Institution, FAA, Oklahoma City, OK; Michel Peres, IMASSA, Brétigny sur Orge, France; Hossein Jadvar, University of Southern California, Los Angeles, CA; Raymon Noonan, Fashion Institute of Technology of the State University of New York, NY; Yasuhiko Miura, Japan Aeromedical Research Center, Tokyo, Japan; Patrick Fitsimmons, USAF/SAM Brooks AFB, TX; Rui Barreira Santa Cruz Hospital & Center for Human Performance, Lisbon & Alverca, Portugal; Gilles Caillard, Aeroports De Paris, Roissy CDG, France; Jason Kring, University of Central Florida, Orlando, FL; and Grant Schaffner, Massachusetts Institute of Technology, Cambridge, MA.

Society of NASA Flight Surgeons Lovelace Award

George Wychliff Hoffer

George Wychliffe Hoffer, M. D., a physician consultant for The Bionetics Corporation, Kennedy Space Center, FL, and a technical resource consultant for the Brevard County School Board, Brevard



County, FL, is the 2000 Lovelace Award winner.

Born March 12, 1934, in Sunbury, NC, he earned an A.B in chemistry from the University of North Carolina in 1956, an M.D. from the University of North Carolina School of Medicine in 1960, and an M.S. in preventive

medicine from the Ohio State University College of Medicine in 1968.

Dr. Hoffer began his medical career with a rotating internship at the Medical College of Virginia, Richmond, VA, from 1960-61. After a 2-yr stint in the U.S. Army as a Battalion Surgeon for the 1/34 Infantry Battalion, 24th Infantry Division, he completed an internal medicine residency at the Medical College of Georgia in Augusta (1963-66), and an aerospace medicine residency at the Ohio State University College of Medicine in Columbus (1966-68).

In 1968, he joined NASA in Houston, TX, working at the Manned Spacecraft Center as a Cardiovascular Laboratory Medical Officer in the Biomedical Laboratories Division. He moved to the NASA Johnson Space Center where his positions included Acting Chief of the Cardiovascular Laboratory and Cardiovascular Physiology Branch Chief at the Biomedical Laboratories Division, and the Flight Medicine Clinic Medical Officer, Space/Clinical Medicine Branch, Space

Research and Operations Division. From 1977-97, he was the Biomedical Office Deputy Director at NASA Kennedy Space Center, FL. He retired from Federal service on February 3, 1997.

Dr. Hoffer has published over 90 abstracts, papers, and presentations, generally in the discipline of aerospace medicine and specifically in the arena of cardiovascular physiology. He is licensed to practice medicine in North Carolina, Georgia, Ohio, and Florida, and is the holder of a Pilot (III) license. He jointly holds patents on the Apparatus and Method for Processing Korotkov Sounds (No. 3,814,083) with Donald P. Golden and Roger A. Wolthuis, and A Logic-Controlled Occlusive Cuff System (NASA Case No. MSC-14836; No. 4,294,261) with J. Baker and W. Hursta.

A Fellow of the Aerospace Medical Association and American College of Physicians, Dr. Hoffer is past president of the Space Medicine Branch and Society of NASA Flight Surgeons, and is a Diplomate of the American College of Preventive Medicine (Aerospace). He is the recipient of numerous awards including the Julian E. Ward Award, Louis H. Bauer Founders Award, and Hubertus H. Strughold Award, and is a member of Phi Eta Sigma, Phi Beta Kappa, and Delta Phi Alpha. Awards from NASA include Sustained Superior Performance Awards, several Group Achievement Awards, Certificates of Recognition, and Superior Achievement Awards. He was also the recipient of the Skylab Achievement Award plus Medal (Skylab Team), Medal for Exceptional Scientific Achievement (Skylab Cardiovascular Data), and the NASA Medal for Exceptional Service.

AsMA-CAMA-AMSUS

Seminar



On Friday, September 8, 2000, there will be an AsMA-CAMA-AMSUS joint seminar from 8:30 a.m. to 3:30 p.m. at USHUS in Bethesda, MD. It will be a Clinical Medicine Update accredited for 5 hours of Category I CME.

The cost for registration will be \$40 for members of AsMA, CAMA, or AMSUS and \$75 for nonmembers. Although mailings will be made only to individuals living in the National Capital area, everyone is invited and encouraged to attend.

For more information either look in future issues of *Aviation, Space, and Environmental Medicine*, or contact Ms. Diane Duvall at (301) 897-8800 ext. 13; e-mail: dianed@amsus.org.