

The Annual Awards of the Aerospace Medical Association

STANLEY R. MOHLER AND PAMELA C. DAY
History and Archives Committee

MOHLER SR, DAY PC. *The Annual Awards of the Aerospace Medical Association. Aviat Space Environ Med* 2006; 77:977-80.

The following summary of information on each of the Association's 15 awards has been assembled at the request of Richard T. Jennings, M.D., M.S., who assumed the Association Presidency during the period May 2006-May 2007. Dr. Jennings tasked the Chair of the History and Archives Committee with preparing a readable summary of some highlights in the lives of the award namesakes.

The following summary of information on each of the Association's 15 awards has been assembled at the request of Richard T. Jennings, M.D., M.S., who assumed the Association Presidency during the period May 2006-May 2007. Dr. Jennings tasked the Chair of the History and Archives Committee with preparing a readable summary of some highlights in the lives of the award namesakes.

Progress in our field of aerospace medicine and associated sciences has been and is being achieved through the creativity, hard work, personal sacrifice, and career commitment of thousands of individuals. Some have lost their lives in the courageous furtherance of this flight safety work.

Our Association began to recognize some stellar contributors to the field of aerospace medicine with the establishment in 1947 of the Theodore C. Lyster Award and the Raymond F. Longacre Award. The establishment of appropriate awards in recognition of achievement in aviation medicine was first suggested by Dr. Louis Bauer at an Executive Council meeting in St. Louis on September 6, 1944, following an editorial on the subject by Bauer which was published in the August 1944 *Journal of Aviation Medicine* (1; p. 169). An Awards Committee was established to select an awardee for each. In subsequent years additional awards were established, the 15th and most recent being the Marie Marvingt Award established in 2005.

Nominees are solicited each year by the Association Awards Committee, with the annual deadline set as December 15. The criteria for each award are published periodically in *Aviation, Space, and Environmental Medicine* and continually on the Association web site. The Committee selects individuals from those nominated and forwards the names to the Executive Committee for ratification. Recipients are honored at a formal banquet ceremony held on the last evening of the annual Association meeting.

The awards program offers peer recognition of contributions by various individuals working in our field. It

provides a link to those so recognized with all of the field's extended family workers and also to the public at large. The objective of this preparation is to provide some history on the respective awards and to encourage members to consider providing submissions of individuals deemed worthy of recognition through the Association program.

AWARDS LIST: AEROSPACE MEDICAL ASSOCIATION, 1947-2006

1. Theodore C. Lyster Award (1947)

Theodore C. Lyster was born July 10, 1875, at Ft. Larned, KS (1; pp.171-4). He graduated in 1899 with an M.D. from the University of Michigan School of Medicine. He obtained postgraduate clinical training at the Manhattan Eye and Ear Hospital, NY, 1901-04. He served in the army in the Philippines, Panama, and on the Mexican-U.S. border. He was then assigned to the office of the Surgeon General in 1916. He formulated physical standards for prospective military aviators. He organized the army aeromedical research laboratory established January 19, 1918, as the Central Medical Research Laboratory, Hazelhurst Field, Mineola, Long Island, NY (William H. Wilmer was put in charge). On May 11, 1918, Lyster became Chief of a new Division, the Air Medical Service, in the new War Department Bureau of Military Aeronautics. The new division was created as separate from the Signal Corps, its previous home. Lyster established military aviation. On August 5, 1933, Brig. Gen. Lyster died in Los Angeles.

2. Raymond F. Longacre Award (1947)

Raymond F. Longacre was born August 18, 1867, and attended Ursinus College, Collegeville, PA (1; pp. 175-7). He received the M.D. degree from the Medical-Chirurgical College of Philadelphia in 1891. He volunteered for the military service, Kelly Field, TX, in 1917, and was assigned in 1919 as commanding officer of the hospital. In 1921 he attended the school for flight surgeons, Mitchel Field, and specialized in neuropsychiatry, becoming the head of the department. He became inter-

From the Aerospace Medical Association, Alexandria, VA.
Reprint & Copyright © by Aerospace Medical Association, Alexandria, VA.

ested in the personality aspects of applicants for flight training and the characteristics of healthy successful aviators. He developed an approach to interviewing aviator candidates as an aid to assure that there were no "disqualifying neuropsychiatric defects" present. In 1923 he became the flight surgeon, Nichols Field, Philippine Islands. In 1926 he was assigned as Base Surgeon, Bolling Air Base. In 1928 he was assigned as Assistant Chief, Medical Section, Office of the Chief, of the Air Corps. In 1931 he retired and became assistant Chief of the Medical Section, Aeronautic Branch, Department of Commerce. On December 31, 1931, he became Chief. He resigned in 1933 and died February 19, 1943.

3. Arnold D. Tuttle Award (1952)

Arnold Tuttle, M.D., was born February 26, 1881, Sturgis, SD (1; pp. 236-45). He received his M.D. degree from the University of Maryland in 1906. He joined the Army Medical Corps as a First Lieutenant in 1908. As a Colonel he was assigned to the staff of General John J. Pershing, France, 1917-18. In 1933 he attended the Air Corps School of Aviation Medicine, Randolph Field, and graduated as a flight surgeon. He became the commandant of the school in 1934. Upon reentering civilian life, Dr. Tuttle became the first medical director of United Airlines.

4. Eric Liljencrantz Award (1957)

As World War II broke, Eric Liljencrantz, M.D., a Californian, was Chief Flight Surgeon for the Pacific Division, Pan American Airways, San Francisco (1; pp. 150-1). He had organized the Medical Department of the Pacific Division of Pan Am. Dr. Liljencrantz joined the U.S. Navy on November 1, 1940, and was assigned to the U.S. Naval School of Aviation Medicine, Pensacola, FL. His assignments included studies of aeromedical aspects of flight safety. Commander Eric Liljencrantz, MC, USN, lost his life at age 39, November 5, 1942, during an aircraft accident while testing a new flight accelerometer.

5. Louis H. Bauer Founders Award (1961)

Louis H. Bauer, for whom our Association has named its annual Founder's award, was born July 18, 1888, in Boston, MA (7). He received his B.A. in 1909, and his M.D. degree in 1912, both from Harvard. He was commissioned in the Army Medical Corps in 1913.

In 1919 he was designated the first Commandant of the new School of Aviation Medicine, Hazelhurst Field, NY, whose research activities were subsequently moved to Mitchel Field, NY. At this location, Bauer conducted some pioneering high altitude research and authored the textbook, "Aviation Medicine" (Williams and Wilkins, 1926).

During 1926 Bauer resigned his commission and was appointed chief medical officer in the new Aeronautics Branch, Department of Commerce. On December 31, 1926, the first Air Commerce Regulations were published. These included the new civilian medical standards developed by Dr. Bauer. In 1927 he appointed the first civilian Aviation Medical Examiners, 144 in number.

In 1929 Dr. Bauer spearheaded the development of the Aero Medical Association, and in 1930 founded the Journal of Aviation Medicine. These evolved into our current Association and Journal. In 1930 he left Government and undertook two years of cardiology training at Bellevue Hospital, NY (taking the editorial office of the journal with him), subsequently entering private practice next to Mitchel Field. Bauer was certified in cardiology in 1939 by the American Board of Internal Medicine.

One could cite many more of Dr. Bauer's accomplishments, including his Presidency of the American Medical Association, 1952. He last attended a meeting of the Aerospace Medical Association, Atlantic City, 1962, at which time he was wheelchair bound. He passed away in 1964.

6. Harry G. Moseley Award (1961)

Colonel Harry Gladding Moseley, USAF, MC, died in an aircraft accident near his home, Norton Air Force Base, February 10, 1959 (8). He was 51 years old. He was returning from the 10th anniversary celebration of the creation of the Department of Space Medicine, Randolph Air Force Base, TX. He was a medical observer in a Lockheed T-33 aircraft that went down in the mountainous area near San Bernardino. His assignment at Norton since November 1953 was as Chief of the Aero Medical Safety Division, Directorate of Flight Safety Research, Office of the Air Force Inspector General. His recent work involved the development of a program concerning aeromedical aspects of aircraft accident prevention. From 1947 to 1951 he served as Deputy Air Surgeon, U.S. Air Forces, Europe. Within this time he directed the aeromedical support of the Berlin Airlift, "Operation Vittles," (June 1948-September 1949). He was a native of Roanoke, VA, and Denver, CO. He received his M.D. degree from Washington University School of Medicine in 1938, interned at Presbyterian Hospital, Denver, and served as a resident at Community Hospital, New Haven, CT. In February 1940 he enlisted in the service and attended the School of Aviation Medicine, Randolph Field.

7. Boothby-Edwards Award (1961)

Walter M. Boothby, M.D., Mayo Clinic, conducted studies on high altitude flight prior to World War II, collaborating with Randolph Lovelace, II, M.D., and A. H. Bulbulian, Ph.D. (1; pp.152-3). Oxygen masks for flight in unpressurized aircraft by aircrew and airline passengers were developed by Boothby and his co-workers (the BLB masks). Harry G. Armstrong, M.D., also collaborated. Special recognition to Boothby, Lovelace, and Armstrong was given during the Collier Trophy award presentation at the White House, December 17, 1940. Howard K. Edwards, M.D., served as Assistant Medical Director, Eastern Airlines, 1940, and became Medical Director, 1941 (1; p. 114). Separate Boothby and Edwards Awards were presented annually from 1961-73; then alternately until 1985, when the awards were combined.

8. Julian E. Ward Award (1963)

Major Julian Ward, USAF, MC, died August 13, 1962, in an airplane crash near Hahn AB, Germany (10). He was 35 years old and was serving as the Commander of the 49th TAC Hospital in Germany. Major Ward was originally from Wichita Falls, TX, and attended the University of Texas, graduating in 1946 cum laude with a B.A. degree in chemistry. He received his M.D. degree from Baylor in 1952. He interned at the San Francisco City-County Hospital. He joined the Air Force as a First Lieutenant and was assigned to the Gunter Branch of the School of Aviation Medicine, Gunter AFB, AL, as the Chief of the Eye, Ear, Nose and Throat Service. He was designated a Chief Flight Surgeon and enrolled in the primary and advanced courses in aviation medicine. He then completed a year's residency in aviation medicine at the Air Force School of Aerospace Medicine and was assigned as Assistant Chief of the Biomedical Division and Project officer of the AF Discoverer Program. He published numerous articles, including "The True Nature of the Boiling of Body Fluids in Space," *Journal of Aviation Medicine*, October 1956 issue. He introduced the term "space ebullism" for the vaporization of body fluids in space at body temperatures. He performed as a test subject in studies of weightlessness. He initiated numerous other studies while in the Division.

9. John A. Tamisiea Award (1963)

John A. Tamisiea graduated from the Creighton University School of Medicine, Omaha, NE, in 1916 (1; pp. 68-70). He entered military service that same year. In 1918 he was wounded in France and received the Purple Heart. He returned to practice in Howells, NE, moving subsequently to Omaha. Dr. Tamisiea was employed as a physician for the Boeing Air Transport Company that flew mail and passengers through Omaha from Cheyenne to Chicago. He was appointed an aviation medical examiner by Dr. Bauer in 1927. He remained a reserve flight surgeon and served as an Army Air Forces hospital commander in World War II. He retired April 9, 1953, as special assistant and consultant to Brigadier General Loyd E. Griffis, surgeon of the Strategic Air Command, Headquarters, Offutt AFB, NE.

10. Mary T. Klinker Award (1968)

Captain Mary T. Klinker, USAF, NC, a flight nurse based at Clark Air Base, Philippines, lost her life in the crash of a large military transport aircraft during the 1975 "Operation Babylift," Saigon, Vietnam (2,11). Captain Klinker was born in LaFayette, IN, and was 27 years old when she perished. She was posthumously awarded the Airman's Medal for Heroism and the Meritorious Service Medal. This award was originally entitled the "Flight Nurse of the Year Award."

11. Sidney D. Leverett, Jr., Environmental Science Award (1978)

Sidney D. Leverett, Ph.D., was born November 27, 1925, in Houston, TX (6). Upon completing high school,

he joined the Air Force in 1944. In 1949 he graduated from Texas A&M with a B.S. degree. He then attended Ohio State University and received an M.S. degree in 1955 and a Ph.D. degree in 1960, having majored in cardiovascular physiology. He was assigned after receiving his master's degree as an aviation physiologist in the Acceleration Section of the Aerospace Medical Research Laboratory, Wright-Patterson AFB, OH. He became the Head of the Section, within which was the only USAF human centrifuge. Following receipt of his Ph.D. degree, he was assigned to the USAF School of Aerospace Medicine, Brooks AFB, TX. As a Captain in the Medical Service Corps, he was Chief of the Cardiovascular Unit within the Physiology Branch. He then became Chief of the Biodynamics Branch in the Environmental Physiology Division. He retired from the uniformed service after 20 years in 1963 and was then appointed civilian Chief of the Division. He retired from the position in 1980. The building (#170) that contained the Brooks centrifuge was named the Leverett Research Laboratory in recognition of his professional work in the facility. From January 1, 1981, to December 31, 1986, Dr. Leverett was Editor of *Aviation, Space, and Environmental Medicine*. Dr. Leverett instituted new departments in the Journal, and aggressively sought research and clinical papers. In this work, he traveled widely, including European and Russian venues. He died March 3, 1987, following a courageous several year fight with cancer. The Leverett Award was originally called the Environmental Science Award, but was renamed for Dr. Leverett in 1987.

12. John Paul Stapp Award (1993)

This award recognizes the creative, interdisciplinary, pioneering and self-sacrificing research and development accomplishments of its namesake, Colonel John Paul Stapp, USAF, MC (Ret) (10). His acceleration and impact studies of human tolerance limits, especially those conducted on himself, have provided data for crash protection that, since incorporation in flight and ground vehicles, have saved countless lives. On December 10, 1954, during one of his rocket-powered sled rides with a forward facing seat and developmental restraint system, Stapp attained a top speed of 632 mph in 5 seconds. The sled was stopped in 1.4 seconds producing 40 Gs of decelerative forces. By defining more closely an outer limit of the human tolerance envelope to crash forces, Dr. Stapp provided vital data points for the use of designers of aircraft cabins, aircrew cockpits, ejection seats, and ground transportation vehicles. Colonel Stapp passed away at his home in Alamogordo, NM, at age 89, November 13, 1999. The award was established by Environmental Tectonics Corporation.

Note: the famous "Murphy's Law" is attributed by some to Captain Edward A. Murphy, Jr., who was involved in the design of a harness with 16 sensors that Colonel Stapp is reported to have worn during a sled deceleration study in 1949. The sensors were reportedly, so the story goes, hooked up backwards and when Stapp exited the sled, no data were available. To paraphrase a reported quote from Murphy, "If there are two or more ways to do something, and one of those ways results in a catastrophe, then someone will do it that way."

13. Kent K. Gillingham Award (1998)

Kent K. Gillingham was born July 16, 1938 (3). He graduated in 1963 with an M.D. degree from the University of Michigan. He was commissioned in the Air Force and studied with Sidney Leverett, Ph.D., highly acclaimed researcher in the field of acceleration studies. Dr. Gillingham began to study the physiological and psychological aspects of spatial disorientation in flight, and received a Ph.D. degree from the University of Iowa. He returned to Brooks Air Force Base and worked on measures to enhance military flight training, including improved cockpit instrumentation. On September 27, 1993, at age 55 he experienced a fatal accident while departing Stinson Field, San Antonio, TX, in his personal light twin aircraft. The award to honor him was established by AMST Group of companies in Austria and the United Kingdom.

14. Won Chuel Kay Award (2001)

Won Chuel Kay was born January 1, 1924, in Suncheon, Pyongan-Bukdo, Korea (4). He received his M.D. degree in 1945 from Severance Union Medical College that subsequently became the Yonsei University College of Medicine. In 1951 he became a flight surgeon in the Republic of Korea Air Force (ROKAF). He attended the 1954 class for flight surgeons sponsored by the USAF School of Aviation Medicine (USAFSAM), Randolph Field, TX. In 1957 he received Korean Board certification in surgery, and obtained additional training in surgery during 1957-58 at the USAF Lackland Hospital, TX. During 1960-61 he made further studies in aerospace medicine at USAFSAM, Brooks AFB, TX. In 1965 Dr. Kay enrolled in the aerospace medicine curriculum directed by Dr. Ross McFarland at the School of Public Health, Harvard University, and graduated with an M.S. degree in 1966. Dr. Kay became Surgeon General of the ROKAF and retired as Brigadier General. He was awarded the Military Merit Choong-Mu with Gold Star, numerous other medals and decorations, and the Citation of Meritorious Service by the Prime Minister of Korea. The United States awarded him the Legion of Merit, the Bronze Star and the Presidential Unit Citation. Upon retiring from the military, Dr. Kay founded the Korean Airlines Civil Aeromedical Centre and became the first Medical Director of the KAL. He was President of the Airline Medical Directors Association, 1981-82, and was a senior FAA AME, 1968-90. Dr. Kay passed away February 1, 2000, at age 76. The award was established by the Korean Aerospace Medical Association.

15. Marie Marvingt Award (2005)

David Lam, M.D., provided the following informa-

tion on the award's namesake (5). Marie Marvingt was born at Aurillac, France, on February 20, 1875. She was a top athlete and was the recipient of numerous first place prizes in multiple sports. She was an avid mountain climber during the 1903-1910 timeframe and she reportedly climbed the majority of the mountains in the French and Swiss Alps. She piloted a balloon on July 19, 1907, and on October 26, 1909, flew a balloon from the European continent to England. In June 1910 she received Aero Club of France balloon pilot licence number 145. In September 1909 Marvingt flew in a fixed wing airplane with Roger Sommers and subsequently flew with Hubert Latham in the Antoinette. On November 8, 1910, she was licenced in fixed wing aircraft, number 281, the third woman to achieve this accomplishment. She conceived the possibility of developing an "aeroplane ambulance" and ordered one from the Deperdussin Company. She served in the French Army in World War I and reportedly flew bomber missions over Germany. She also reportedly assisted with Red Cross nursing duties during the period. During the 1920s Mlle. Marvingt lectured in different countries on the concept of aeromedical evacuation. She established the civil air ambulance service in Morocco and taught rescue pilots how to takeoff from and land on sand with air ambulance aircraft using ski landing gear of a type she devised. On January 30, 1955, Marie Marvingt received recognition from the Federation National d'Aeronautique for her work in the field of aviation medicine. She died on December 24, 1963, at the age of 88. The award was established by the French Aerospace Medical Association.

REFERENCES

1. Benford R. Doctors in the sky. Springfield, IL: C. C. Thomas; 1955.
2. Flight Nurse Award (subsequently named for Captain Mary T. Klinker, USAF, NC). Medical News. *Aerosp Med* 1968; 39:332.
3. Gillingham Award: News of Members. *Aviat Space Environ Med* 1998; 69:716.
4. Kay Award: News of Members. *Aviat Space Environ Med* 2000; 71:467.
5. Lam D. Marie Marvingt and the development of aeromedical evacuation. *Aviat Space Environ Med* 2003; 74:863-8.
6. Leverett Award: Medical News. *Aviat Space Environ Med* 1987; 58:520.
7. Mohler S. Louis Bauer, M.D. and the first civil U.S. aeromedical standards: his continuing legacy. *Aviat Space Environ Med* 2001; 72:62-9.
8. Moseley Award. Member News. *J Aviat Med* 1959; 28:219.
9. Smolenski M, Smith D, Nanney J. A fit fighting force: the Air Force Nursing Services chronology. In: 1903-2003 flight, the 100th anniversary commemorative edition. Washington, DC: Office of the Air Force Surgeon General; 2005:28.
10. Stapp Award: News of Members. *Aviat Space Environ Med* 1993; 64: 671.
11. Ward Award. Member News. *Aerosp Med* 1962; 33:1261.

CONTINUING MEDICAL EDUCATION & MAINTENANCE OF CERTIFICATION

OBJECTIVES

The physician will understand how the signs/symptoms of an illness and the side effects of therapy could adversely affect aircrew members or passengers in flight. Participants should be able to apply this in the determination of aeromedical disposition.

PARTICIPANTS

This program is designed for physicians who function as flight surgeons or aviation medical examiners who practice civil or military aviation medicine and space medicine.

FACULTY

The faculty will be comprised of aerospace medicine physicians (Board Certified) appointed by the Executive Director who will serve as Chair.

CREDITS

The Aerospace Medical Association (AsMA) is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. The Aerospace Medical Association designates this Continuing Medical Education activity for one (1) credit hour in Category I of the Physicians Recognition Award of the American Medical Association.

To earn CME, you must answer at least 75% of the questions correctly. You can receive 1 hour of credit for each article. The American Board of Preventive Medicine accepts these CME credits for Maintenance of Certification (MOC) credit.

All physicians can claim CME but only those US physicians board certified in aerospace medicine, occupational medicine and preventive medicine can claim MOC credit.

Examination Evaluation

1. Were the stated program objectives met?

☐ A. Yes ☐ B. No
☐ C. Partially _____

2. Were the selected articles and related questions relevant to your practice?

☐ A. Yes ☐ B. No

3. Do you anticipate that participation in the program will result in any changes in your delivery of patient care?

☐ A. Yes _____

☐ B. No _____

☐ C. Not involved in patient care.

INSTRUCTIONS FOR OBTAINING CATEGORY I CME AND MOC CREDITS

1. Read the designated CME/MOC articles in this issue. (You can participate in any or all of the articles.)
2. Answer the 4 questions for each article you want to submit.
3. The fee for this service is \$15.00 per article.
4. Tear out and complete the form. Return form by fax to 703-739-9652 OR mail the answer sheet including your credit card number or a check made out to Aerospace Medical Association to:

**Aerospace Medical Association
MOC/CME
320 S. Henry Street
Alexandria, VA 22314**

\$15 x ____ exams = \$_____ (total)

PAYMENT MUST ACCOMPANY FORM

METHOD OF PAYMENT: VISA AMEX DISCOVER MASTERCARD DINERS CLUB
(Please circle one) (No other credit cards will be accepted) CHECK

NAME (PRINT) _____

CREDIT CARD # _____ EXPIRATION DATE _____

SIGNATURE: _____

MAILING ADDRESS: _____

E-MAIL: _____ PHONE: _____

Sound Attenuation from Earmuffs and Earplugs in Combination: Maximum Benefit vs. Missed Information

S. M. Able and P. Odell

Aviat Space Environ Med 2006; 77:899-904.

Question 1. Long term exposure to unprotected 8-hour A-weighted equivalent levels exceeding _____ dBA will result in hearing loss.

- A. 55
- B. 65
- C. 75
- D. 85

Question 2. Ear plugs alone provide better protection against loud noise than earmuffs.

- A. True
- B. False

Question 3. Which statement is true regarding normal hearing individuals?

- A. There is reduced audibility when wearing earmuffs.
- B. There is little or no audibility when wearing both earplugs and earmuffs.
- C. There is reduced audibility when wearing earplugs.
- D. Audibility will not be compromised when hearing protection is worn.

Question 4. Highly rated earmuffs and earplugs, even in combination, will not provide protection against steady state and impact noise..

- A. True
- B. False

Carotid Sinus Pressure Changes During Push-Pull Maneuvers

L. S. Goodman, L. Grosman-Rimon, and R. Mikuliszyn

Aviat Space Environ med 2006; 77:921-8.

Question 1. Which of the following is true regarding the Push-Pull Maneuver (PPM)?

- A. The PPM is a rapid transition from -Gz to +Gz.
- B. The PPM is employed by tactical pilots during aerial combat to attain strategic advantage.
- C. A sizeable percentage of accidents involving G-induced loss of consciousness are associated with the PPM.
- D. All of the above.

Question 2. G-tolerance is degraded when +Gz exposure immediately follows a -Gz exposure.

- A. True
- B. False

Questions continued on next page.

CONTINUING MEDICAL EDUCATION & MAINTENANCE OF CERTIFICATION

EXAMINATION ANSWERS (Circle correct answer)

Sound Attenuation from Earmuffs and Earplugs

S. M. Abel and P. Odell
ASEM 2006; 77:899-904

QUESTION 1.

A B C D

QUESTION 2.

A B C D

QUESTION 3.

A B C D

QUESTION 4.

A B C D

CME/MOC HOURS

☐ 1.0

Carotid Sinus Pressure Changes During Push-Pull Maneuvers

L. S. Goodman et al.
ASEM 2006; 77:921-8

QUESTION 1.

A B C D

QUESTION 2.

A B C D

QUESTION 3.

A B C D

QUESTION 4.

A B C D

CME/MOC HOURS

☐ 1.0

Rocket-Assisted Ejection Seats

M. E. Lewis
ASEM 2006; 77:936-43

QUESTION 1.

A B C D

QUESTION 2.

A B C D

QUESTION 3.

A B C D

QUESTION 4.

A B C D

CME/MOC HOURS

☐ 1.0

Neurological Disorders After Repetitive Breath-Hold Diving

E. Gempp & J-E. Blatteau
ASEM 2006; 77:971-3

QUESTION 1.

A B C D

QUESTION 2.

A B C D

QUESTION 3.

A B C D

QUESTION 4.

A B C D

CME/MOC HOURS

☐ 1.0

Question 3. Regarding physiologic responses during +Gz and -Gz exposure, which of the following is not true?

- A. During +Gz exposure elevated total peripheral resistance allows for partial recovery of arterial blood pressure at head-level.
- B. Bradycardia and vasodilation in peripheral vascular beds occurs during -Gz exposure.
- C. Transition from bradycardia during -Gz exposure to tachycardia during subsequent +Gz can take several seconds to occur.
- D. Arterial baroreflexes in the acceleration environment are redundant and complex.
- E. Blood pressure recovery during transition from -Gz to +Gz is highly dependent upon the peripheral microcirculation's ability to vasoconstrict.

Question 4.

- A. True
- B. False

Survivability and Injuries from Use of Rocket-Assisted Ejection Seats: Analysis of 232 Cases

Matthew E. Lewis

Aviat Space Environ Med 2006; 77:936-43.

Question 1. The overall survival rate for ejections from RAF aircraft is approximately:

- A. 50%.
- B. 75%.
- C. 85%.
- D. 90%.

Question 2. The most common ejection injury is:

- A. Spinal fracture.
- B. Upper limb fracture.
- C. Head injury.
- D. Lower limb fracture.

Question 3. The survival rate of RAF ejectees compares favorably with survival rates as reported in the literature.

- A. True
- B. False

Question 4. Which statement is true?

- A. Spinal fracture injury incidence is about the same for non-rocket assisted ejection seats and rocket assisted ejection seats.
- B. The addition of rocket assisted ejection seats has decreased the incidence of spinal fractures.
- C. Spinal cord damage after ejection is common.
- D. Stature, sitting height, and lower limb length are factors found to be significant in ejection injury.

Neurological Disorders After Repetitive Breath-Hold Diving

E. Gempp, J-E. Blatteau

Aviat Space Environ Med 2006; 77:971-3.

Question 1. The development of neurological signs and symptoms after breath holding in diving may be caused by all of the following except:

- A. Nitrogen oversaturation.
- B. Build-up of carbon dioxide.
- C. Cerebral artery occlusion.
- D. Bubble formation in arterial blood.

Question 2. Decompression illness in breath holding divers has been most associated with:

- A. Patent foramen ovale.
- B. Pre-dive hyperventilation.
- C. Coronary artery disease.
- D. Pulmonary hypertension.

Question 3. The development of cerebral DCI by paradoxical gas embolism includes all of the following except:

- A. Venous bubbles.
- B. A large right-to-left shunt.
- C. Coughing or straining.
- D. Increased pulmonary pressure.

Question 4. The gold standard for detecting a right-to-left shunt is:

- A. Transcranial Doppler.
- B. Transesophageal echo.
- C. CT.
- D. Angiography.

President's Page

The Aerospace Medical Association (AsMA) has the privilege to annually acknowledge and recognize individuals who have made important contributions to the field of aerospace medicine. The award process has been ongoing for almost 60 years, and the Association currently has 15 major awards that are presented annually. As an organization with approximately 3000 members, those that receive these special awards have made significant contributions to our field and are deserving recipients.

Each of the 15 AsMA awards is named for an individual who was a leader in our field or who made great personal sacrifice in support of the women and men who work in the aerospace environment. It is appropriate to periodically refresh everyone's memory of the history of the AsMA awards and the contribution made by each of those with named awards. Dr. Stanley Mohler and the History and Archives Committee gladly accepted this assignment, and his special committee report on the awards of the Aerospace Medical Association is published in this edition of the journal. Those whose names grace our awards are an outstanding group of individuals, and I was very impressed by their histories and contributions to the health, safety, and performance of those in the aerospace environment and related fields. The personal sacrifice of this group is apparent since 5 of the 15 died in aircraft accidents. I strongly encourage you to read Dr. Mohler and Pam Day's article.

AsMA is fortunate to have an outstanding Awards Committee headed by Commander Andy Bellenkes. The job of Andy and his committee is to see that worthy individuals in our organization are selected for these awards. However, the committee depends on the membership to nominate individuals for the various awards. The Award Rules are available in the journal, and the Nomination Form can be downloaded from the website or completed online. Award nominations are due by December 15. Please review the specific criteria for each of the awards and nominate deserving individuals. Doing so not only provides the nominee the recognition he or she so richly deserves, but also greatly benefits our organization as a whole by providing a means for its membership to publicly recognize the many outstanding contributions of its members.

New Orleans 2007

On Wednesday July 12, a delegation from AsMA that included the local events chair, Bob Johnson, program chair Joe Dervay, FAA representative Ridge Smith, Wing delegation Conoly Barker, Dianne Okonsky-Hudson, and Melinda Beane, representatives from AIM Walt Galanty and Tom Dozier, and I established a "beach head" in New Orleans. Actually, the airport, transportation system, and host hotels, the Marriott and Sheraton, are in fine working order and present no constraints to



Richard T. Jennings, M.D., M.S.

our meeting. Recently, New Orleans accommodated a meeting with 18,000 attendees, and our meeting will be small by comparison. Almost all of the restaurants are now open including Brennan's, Arnaud's, K Paul's, Café du Monde, Emeril's, Court of the Two Sisters, and Galatoire's. Local venues including the Aquarium/IMAX (3 blocks), World War II Museum (9 blocks), and Riverboats (4 blocks) are open and thriving. For those of you who do not understand mathematics and probability, Harrah's Casino is open and waiting (3 blocks). We plan to hold the 5K run on early Monday morning in the beautiful Woldenberg Riverfront Park located only 4 blocks from the host hotels.

While the downtown hotel area and French Quarter are doing well, there are areas of New Orleans outside the meeting location that are hurting and will be affected for many years. Members of AsMA are known for caring for our patients and professionally completing our responsibilities. In this case, we have a timely opportunity to help greater New Orleans recover. Dr. Johnson is leading an effort for volunteer members to join local agencies to help rebuild New Orleans on the Saturday before the start of the annual clinical meeting. Please consider participating in this effort. Information on this will be provided when available.

Of course, the scientific meeting is the most important function, and even though we are in two host hotels, the current plan keeps the scientific sessions in a single hotel on each of the session days. In order to facilitate access to the posters and commercial displays, the scientific sessions on Monday and Tuesday will be co-located with the commercial displays and posters at the Sheraton and moved to the Marriott for Wednesday and Thursday. This approach also allows attendees to move from room-to-room. Dr. Dervay has made great strides in developing the invited workshops and special sessions, and he looks forward to a productive abstract submission process leading to the final program.

We look forward to seeing you in May.
Laissez les bon temps rouler!

Medical News

AVIATION, SPACE, AND ENVIRONMENTAL MEDICINE

Executive Director's Column



Rayman

New Orleans 2007

Our site team has just returned from visiting New Orleans, which will be the venue for our May 2007 Annual Scientific Meeting. The entire team very much enjoyed the visit and walked away with a very confident feeling that New Orleans, and in particular the Sheraton and Marriott hotels, are ready and capable of meeting all of our requirements.

The Sheraton and Marriott hotels are located across the street from one another on Canal Street, only 2-3 minutes on foot. They are of equal size and equal quality, both being modern and capable of providing us with large break-out rooms, as well as a number of excellent restaurants. Our team was ably hosted by key hotel personnel as well as personnel from the New Orleans Convention and Visitor's Bureau. The entire New Orleans team was friendly and most responsive to our planning needs. They enthusiastically look forward to welcoming us in May.

Because we are contracted with two hotels, the academic sessions, meal functions, registration, and exhibits will be divided between the two properties. In my January letter to you, I will give more details regarding this split as final arrangements have not yet been made.

The French Quarter and the Riverwalk are very close to the hotels and can easily be reached within minutes on foot. It appeared that all businesses, particularly restaurants, were open and serving clientele.

Because it is a bit early in the meeting planning process, we do not have definite plans for some of the major events such as the Sunday night welcome and the Tuesday night special event. However, there are several ideas being bandied about, such as a riverboat trip. You will be informed as soon as all arrangements have been finalized.

The online submission website will open in early August and our Science Program meeting, chaired by Dr. Joe Dervay, will meet in mid-November to peer review the papers. We are expecting a great turnout in New Orleans and I hope to see all of you there in May. If you have any particular questions, do not hesitate to call me.

Point your mouse to the AsMA home page at: www.asma.org
It's updated with important, new information about your Association.

Europeans Found New Aerospace Medicine Society

Six months ago, on Saturday the 11th of March 2006, The European Society of Aerospace Medicine (ESAM) was founded in Frankfurt am Main, Germany.

The stated purposes of the society will be to promote flight safety and health among passengers and air crew; to be a pan-European, independent forum for Aerospace Medicine, to coordinate European Aerospace Medicine interests in applicable forums; and to develop and harmonize education in Aerospace Medicine throughout Europe. Many Aerospace Medical Association members and constituent organizations were involved in founding this new organization and we will endeavour to work in consort with this fledgling group.

The following Associations signed the Founding Resolutions:

Austrian Academy of Aviation Medicine
Croatian Society of Aviation Medicine
Deutsche Akademie für Flug- und Reisemedizin
Deutscher Fliegerarztverband e.V.
German Society of Aerospace Medicine
Hungarian Association of Aerospace Medicine
Moldavian AMEs
Norwegian Association of Aviation Medicine
The assembled delegates elected an interim president and an interim executive committee. They will plan and organise a General Assembly before the end of the year.

The members of the Interim Executive Committee are:

President:	Lars Tjensvoll
Vice Presidents:	Roland Vermeiren, Wolfgang Köstler, Elena Cataman
Treasurer:	Hans-Werner Teichmüller
Deputy Treasurer:	Anthony Wagstaff
Secretary:	Hans Pongratz, Claudia Stern
Secretary-General	Lutz Bergau, Per Årva, Gábor Hardicsay

For further information, contact Lars Tjensvoll: lars@flylegen.no or visit www.esam.aero.



ESAM founded - The participants at the meeting in Frankfurt am Main, Germany, where the European Society of Aerospace Medicine was founded.

AMA Annual Meeting 2006

by Daniel B. Lestage, M.D., Delegate

The Aerospace Medical Association was represented by Dan Lestage, Mike Berry, and Dan Shoor at the 2006 AMA House of Delegates meeting June 10 - 14 in Chicago. As one of the oldest and most highly visible specialty societies in the AMA, we again effectively represented your interests in the 500+ member House and staff of the largest, most respected medical organization in America.

On Saturday, just prior to the House convening, the AMA again sponsored a "career" expo for medical students at which we manned an AsMA booth. We had high interest and many candidates who stopped to inquire about our specialty and residency programs. The interest was very encouraging and we believe our efforts to promote Aerospace Medicine were successful.

While health care economic issues that usually dominate the House were again prevalent, several initiatives crucial to our members and their constituencies actually took center stage. The Council on Ethical and Judicial Affairs held very spirited discussions on the topic of physician participation in interrogations. With the leadership of our military coalition delegates an acceptable compromise policy was approved by the House that states physicians must not conduct, directly participate in or monitor prisoner interrogations with the intent to intervene. However, physicians may participate in development of interrogation strategies as long as they are humane and non coercive with respect to the rights of the individual.

The House adopted policy on immunizations that addresses access to all vaccines recommended by the Advisory Committee on Immunization Practices by all health care providers, with special emphasis on influenza vaccine distribution to ensure high priority populations are covered.

The AMA Foundation was directed to work with state and national medical societies to ensure a disaster relief fund for medical students, residents and impacted practicing

See AMA, p. 999

This Month in Aerospace Medicine History-- September 2006

By Walter Dalitsch III, M.D., M.P.H.

One Hundred Years Ago

First European airplane flight: On September 13, 1906, the first European airplane flight took place at Bagatelle Field, Paris, France. The Brazilian pilot Alberto Santos-Dumont flew the *Oiseau de Proie* or "Bird of Prey," reportedly the first craft to take off without any external apparatus or assistance, or the aid of high winds (8).

Seventy-five Years Ago

Post-flight physical findings in pilots (Kansas City, MO): "Those familiar with aeronautics know that flying constantly or continuously produces fatigue. This may be manifested in various ways. The most common subjective symptoms are lack of attention, loss of ambition, sense of hunger and thirst, and a feeling of exhaustion and drowsiness.

"Physical examinations of air pilots after flight reveals a constant finding, namely, hypotension. What is the cause of this hypotension? Is this physical evidence of fatigue? It was this constant finding which led us to collect data on the metabolism and blood changes after flight. Extensive literature has developed around the question of metabolism, but a perusal of this literature reveals the fact that there is one phase of metabolism which has received little or no attention. We fail to find any mention of the changes in metabolism produced by flying...

"Fifteen veteran pilots have been studied. Forty-six and six-tenths per cent (46.6 per cent) of these pilots show a lower basal metabolic rate after flying in comparison to the basal metabolic rate found after resting. Blood sugar values are low. Identical values were almost always found for blood sugar after flying and after rest. Creatinine determinations show no change. Non-protein nitrogen determinations show that forty-six and six-tenths per cent (46.6 per cent) give higher values after rest, but this group is not related to the group showing higher basal metabolic rates after flying. The Schneider Index permits us to conclude that a pilot has a more efficient neuro-circulatory mechanism after rest...

"We feel that our findings on such a limited group of pilots offers no definite conclusion, but it is our opinion that further work in this field will bring forth interesting physiological facts regarding the adrenal glands, hypotension and fatigue. It is hoped that these facts will not only prove of academic interest but will be useful in the future welfare of those men engaged in aeronautics" (3).

Fifty Years Ago

Success of a Canadian air ambulance service: "The Saskatchewan Air Ambulance Service has demonstrated, in its first ten years of operation, the feasibility of transporting seriously ill patients by airplane in a prairie region at all times for the year. Even with the use of ordinary fields for landings and take-offs, an excellent safety record is possible. With the services of flight nurses and appropriate medical equipment and supplies, the medical contraindications and physiological hazards are remarkably low.

"The provision of speedy air transportation has undoubtedly improved the quality of

medical services accessible to a thinly settled rural population. It has put life into the concept of regionalization of hospital services. That lives have been saved which would otherwise have been lost is beyond doubt. Abuse by patients or doctors, in way of unnecessary ambulance calls, has been practically nil. The chief problem still to be faced in Saskatchewan is the need for an improved system of road ambulances, to cover shorter distances, integrated with the air service. The costs of the Air Ambulance Service are not low, but the values gained must be measured in terms beyond the statistics on patients successfully transported and lives saved. Perhaps the greatest value of all is the sense of psychological security enjoyed by the rural people of Saskatchewan, who know that if they need to get to a distant hospital, on short notice in rain or shine, they can count on the Air Ambulance Service" (5).

The danger of flying with fatigue: "Flying fatigue is a matter of the utmost importance if only because on a person's physical, mental, and psychological fitness at any one time depends the safety of an aircraft, its crew, and passengers. An individual who is fatigued may make an error of judgment which is fatal. Flying fatigue can have a variety of causes. Excessive flying hours, inadequate rest on the ground between flights, a difficult aircraft, unrestful sleep, illness, psychological strain, bad weather or, in fact, absence of any of the many factors which go to make up peace of mind and physical and mental fitness. If a man, otherwise physically fit, is distressed by domestic or other worries, he will probably not be getting the sleep or rest he needs, and a dangerous situation may well build up, unknown to all but close observers" (1).

The fear of flying: "Fear of flying is an omnibus expression used for convenience in the armed forces to categorize air crew members whose flying proficiency is threatened or impaired by decreased motivation or psychiatric symptoms. In no sense a diagnosis, it comprehends exaggeration of the inherent conservatism of advancing age, the deleterious effect of certain environmental influences, and actual psychiatric illness" (6).

Hazards of cosmic rays in flight? "Clear-cut answers as to whether cosmic rays are hazardous are bound, in time, to emerge. Up there, in the as yet hostile and forbidding fringes of space where it is always night, the ubiquitous mouse has gained a foothold. Before man can do likewise, or, indeed, pierce the stratosphere and travel through the black unknown beyond, he will continue to need balloon-borne animals as forerunners - unless, perchance, man himself is willing to serve as 'guinea pig' for his fellow man" (2).

Twenty-five Years Ago

Heat stress in the cockpit (USAF School of Aerospace Medicine, Brooks AFB, TX): "Heat stress is a significant problem during low-level flight in hot climates, especially in aircraft that impose high task loads and repetitive maneuvering forces. The A-10 close-support aircraft presents such a combined-stress environment. This report summarizes data from 15 low-level flight over desert. Ground dry-bulb temperature ($T_{db,g}$) was 26-42°C. Cockpit temperature ($T_{db,c}$) was commonly over 40°C on the ground and tended to drop progressively from taxi-out through flight to the range and return; for any given phase it was a linear function of $T_{db,g}$. Small (50-mm) black globe temperature

($T_{bg,s}$) exceeded $T_{db,c}$ by 2-5°C on the ground and by 4-8°C in flight. The pilot's mean skin temperature was a linear function of $T_{db,c}$ in each phase. Auditory canal temperature (T_{ac}) rose from a control value of 37.0 to a mean of 37.4°C in flight, with on pilot reaching 37.8°C. Sweat rate was a linear function of $T_{db,g}$ with weight loss up to 2.3%. These data are compared to earlier studies of the F-4 and F-111 aircraft. Although the performance of the A-10's cooling system resembles that in other aircraft and is somewhat better than the F-4 on the ground, the effects of cockpit heat are exacerbated by its close-support role. Pilots noted lowered G-tolerance and increased general fatigue on the hotter flights. The foot- and leg-area temperatures exceeded those at the head; planned changes in air distribution should partly alleviate that situation" (4).
Smoking and eye color in hearing loss (Naval Aerospace Medical Research Laboratory, Pensacola, FL): "In a retrospective analysis of data collected during the 1963 followup of the NAMRL Thousand Aviator Study, two hearing level groups were identified, normal and impaired, and compared along 33 non-auditory dimensions. It was discovered that these two equally noise-exposed groups could be differentiated according to their smoking history and eye color. That is, the impaired hearing group reported smoking more cigarettes for a greater period of time than did the members of the normal hearing group. Furthermore, blue-eye individuals were over-represented in the normal hearing group, whereas the reverse was true for brown-eyed aviators. This latter finding is consistent with reports linking temporary hearing loss and eye color. There were 31 other physical, psychological, and sociological measures which failed to appear differentially in the two groups" (7).

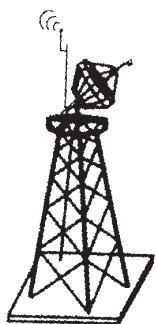
References

1. Bergin KG. Aviation medicine. The Times Survey of British Aviation, 1956 (Sep 3).
2. Haymaker W. Operation stratomouse. Milit Med, 1956 (Sep).
3. Miller WH, Ginsberg AM. Metabolic and serologic changes in flight fatigue: Preliminary report. J Aviat Med, 1931; 2(3):155-61.
4. Nunneley SA, Flick CF. Heat stress in the A-10 cockpit: Flight over desert. Aviat Space Environ Med, 1981; 52(9):513-6.
5. Roemer MI. Tenth anniversary of Air Ambulance Service. Canadian Med Assoc J, 1956 (Sept 15).
6. Tempereau CE. Fear of flying in Korea. Am J Psychiatry, 1956 (Sep).
7. Thomas GB, Williams CE, Hoyer NG. Some non-auditory correlates of the hearing threshold levels of an aviation noise-exposed population. Aviat Space Environ Med, 1981; 52(9):531-6.
8. www.infoplease.com/ipa/A0004537.html; http://en.wikipedia.org/wiki/Alberto_Santos-Dumont

AsMA Future Meetings

May 13-17, 2007
Sheraton and Marriott Hotels
New Orleans

May 11-15, 2008
Sheraton and Hilton Hotels
Boston, MA



Science & Technology Watch

Keeping You Informed Of The Latest Advances In Science And Technology

In this month's Watch we read about the importance of the aviation medical community to monitor the progress of Human Performance Optimization research and development and benefit from the lessons learned by other communities.

Human Performance Optimization in Aviation

Lt Col Valerie E. Martindale, PhD
Chief of Aerospace Physiology, Human Performance Enhancement Division,
Bolling AFB, Washington, DC

In May 2005, the Office of Net Assessment distributed a report entitled "Human Performance Optimization and Military Missions." This document introduced a number of ideas into the human performance arena whose time has not yet come, but which will certainly be a part of our future, and not just in the military.

The authors introduce "optimization," a term distinct from enhancement. Enhancement, they contend, refers to improving a specific aspect of performance in isolation, such as creatine to improve anaerobic burst strength. Optimization, on the other hand, refers to combinations of enhancements tailored to the task at hand, and ultimately to the individual performing the task.

To capture the idea of this balanced, tailored approach, the authors investigated "archetypes," samples of military operators which can be analyzed for performance needs and then optimized with human performance approaches. The three archetypes investigated in the report are the "Versatile Warrior" applicable to Special Forces, the "Pencil Warrior" modeled on submarine crews, and the "Techno Warrior." The Techno Warrior archetype was modeled on B-2 crews and Joint Surveillance and Target Attack Radar System (JSTARS) crews, and is the one most broadly applicable to aviation subfields. Undoubtedly other archetypes will be found to be important; the Pencil Warrior may be found to describe air traffic control center personnel better than the Techno Warrior, and as yet undiscovered archetypes may be needed for other subfields such as fighter pilots and load masters.

Each archetype consists of a set of measures on 13 axes, each of which represents

an "enabler." The value on each axis represents the percentage of essential mission skills for that archetype that require that enabler. The result describes the relative importance of each enabler to the mission. As an example, the Techno Warrior archetype is shown in Fig. 1. Acuity, an enabler, is required for 15% of the essential mission skills of a Techno Warrior. Size is required for almost none, and strength is even less important. Optimization consists of maintaining this balance while enhancing the enablers. (Note that the example in Fig. 1, B-2 and JSTARS crews, do not require high G-tolerance, which would increase the relative importance of strength. This provides further evidence of the importance of tailoring enhancements to the mission.)

The report spurred the DoD Department of Health Affairs to task the Uniformed Services University of the Health Sciences to hold a Human Performance Optimization Workshop, with the goal of producing a way ahead for human performance optimization (HPO) research and development. The workshop was held in June and attended by 89 individuals representing 56 DoD organizations to include research, medical, and operational communities. While the meeting did not focus on aviation, it nonetheless produced some interesting insights on the role of HPO in aviation.

The importance of maintaining an aviation voice in the evolving HPO research and development community was clear. There are a number of reasons, detailed below, to participate in this process as HPO gains momentum.

Aviation presents some unique HPO challenges. Currently, information saturation without situational awareness is a target for improvement. Multiple sensors feed information to a pilot, without integration into an intuitive picture. Multiple operators, in the air and on the ground, receive information but fail to build a common operating picture. There are approaches to both ends of the problem, with the hope of meeting in the middle with a fused, intuitive, real-time, common operating picture. Such an enhancement to human performance will have implications for civil aviation as well, where information management is an increasing problem in congested airspace. Another unique consideration, which is not new for aviators, is rapidly and repeatedly crossing

time zones, violating circadian rhythms and sleep requirements. Some populations voluntarily subject themselves to non-biologic schedules, such as traditional 18 hour cycles on submarines, but only aviators are required by the mission itself to so abuse the biological clock. It is also important to remember that for decades aviation safety studies have identified human factors as causal or major contributors in 70% to 85% of mishaps. For this reason alone, a base of research in aviation-centered HPO is a good investment.

A repeated theme in the report and at the workshop was the culture surrounding HPO. Aviation is historically a very conservative community, and this is evident in their suspicion of enhancements in the form of dietary supplements and pharmaceuticals, despite a higher acceptance of technological solutions. This is in contrast to Special Forces, where technological solutions are suspect, but dietary supplements and pharmaceuticals are regarded as holding great promise. It is also in contrast to the wider American culture, where performance enhancement is a multibillion dollar industry, largely centered on solutions that can be taken *per os*.

HPO is commonly framed in terms of the needs of Special Forces, and this has serious drawbacks for aviation. Special Forces consider physical training to be the premiere area of enhancement, with expectation of a great return on investment. Military aviators may be proud of their physical training, but expect no improvement of mission effectiveness as a result of better physical training. A diet and fitness regimen tailored to troops performing 10 mile hikes with 70 lb backpacks will provide too many calories for aviators and too little time for critical skill maintenance. Interventions aimed at maintaining focus on the battlefield may prevent recognition of developing problems in an aircraft. This is not to say that there will be no benefits for aviation from other quarters. It does pay to look over the fence, for example at the Navy's multimodal watch station (<http://www.pacific-science.com/CandC/CandC.shtml>). At the same time, the aviation community must have its own voice and presence to ensure its issues are addressed.

The future of HPO is bright. The future of HPO in aviation is still taking shape. A great deal will depend on how HPO is defined for the purpose of distributing research dollars. How does it fit with human systems integration? How does it interact with safety and medicine? And how do we measure success? These questions are not yet answered. It will pay for the aviation community to be vigilant and vocal at this early stage of HPO program development, to reap the greatest benefit on this new frontier, the human frontier.

The AsMA Science and Technology Committee provides the Watch as a forum to introduce and discuss a variety of topics involving all aspects of civil and military aerospace medicine. Please send your submissions and comments via email to: barry.shender@navy.mil Watch columns are available at www.asma.org in the AsMA News link under Publications.

Techno Warrior HPE Archetype

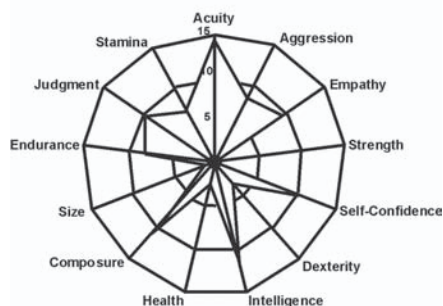


Fig. 1. The Techno Warrior's Ratio of Enablers, from Human Performance Optimization and Military Missions, May 2005, by SAIC, authors Adam Russell, Bartlett Bulkley, and Christine Grafton, for the Director, Office of Net Assessment.

SPACE MEDICINE ASSOCIATION NEWS

Space Medicine Branch Changes Name

Executive Committee Meeting Report, Review of Annual Business Meeting and Luncheon Activities, and Farewell

The Annual Executive Committee Meeting, Luncheon and Business Meeting of the Space Medicine Branch were held at the Orlando Marriott Convention Center on Thursday, May 18, 2006. President Dwight Holland called the meeting to order and congratulated the Committee members and officers present for doing an outstanding job during the year for the various initiatives for "The Branch" (as this organization is affectionately known). Most of the initiatives evolved from a general plan developed by these officers over the past several years to continue to update the organization's structure and operations, bring it into the modern era of financial/information management, and to recognize the importance of the internet as a communications and organizational vehicle. Most of the officers and committee chairs in this year's work are represented in the group photo (below) commemorating this rather historic year for the organization, since this year we voted to change our name to the Space Medicine Association (SMA).

Our Secretary, Alan Moore, reported that the Access database he created was up to date, and he encouraged the members to update their addresses and check up on their dues status.

President-elect Jon Clark reported on the election results with Mark Campbell assuming the role of President of SMA in 2007-08 for a one year term, and Vernon McDonald will assume the role of Secretary for a 2-year term from 2006-08. Newly elected Members-at-Large were Jan Stepanek and Doug Hamilton, with Alyson Calder assuming the third member-at-large position, replacing Mark Campbell.

Treasurer Report--Genie Bopp reported that the long-sought after Not-for-Profit 501(c)(3) status was obtained from the IRS.

As a part of our efforts to reach out to the professional community our members serve, and to stabilize our finances and provide scholarship money to students and other space-related organizations, we are delighted to announce several contributors to our organization this year. Due to these philanthropic efforts and more effective management of our finances, Genie reported that after the meeting we will have well over \$10,000 in our Treasury, with about \$5,000 earmarked especially for Young Investigator Awards and Scholarship money. Genie and Finance/Corporate Sponsor Chair, Dwight Holland, were delighted to report the following financial support of SMA's activities, with deepest thanks to our donors:



Space Medicine Branch Officers 2005-06--(front row left to right kneeling-Jeff Jones, Dwight Holland; second row left to right-Jeff Myers, Judith Hayes, Mark Campbell, Genie Bopp, Alan Moore; back row left to right-Phil Scarpa, Mike Chandler, Smith Johnston, Jon Clark)-not pictured but at the meeting: Denise Baisden, Karen Breeck, Aly Calder, Mary Anne Frey.

Donations:

Wyle Labs - \$3000 (with special thanks to CEO George Melton, and Senior Vice President Bob Ellis)

Kelsey Seybold \$1000 - (with special recognition to Dr. James Hoyle)
Dr. Jeff Myers-- for another \$1,000 personal contribution for the Young Investigator Award Fund

Comprehensive Health Services-- \$500 for Young Investigator Award Fund (with special thanks to CHS and to Jeff Myers for enabling the contribution from this company again this year--see p. 892 in the August issue of ASEM)

Mark Campbell for his donation of \$1660 in cash and services to develop and sustain the SMA website

Other Contributors:

Phil Scarpa-for his contribution of \$100.00 toward a Scholarship Award for this year's recipient of the Young Investigator Award.

Smith Johnston and Dwight Holland, as additional Patrons, contributing several hundred dollars between them to SMA's General Operating Fund.

Thanks to Jeff Myers, and our Wyle Laboratories supporters, we now have approximately \$5,000 of "Endowment" money. The goal is to grow this to over \$10,000, and use the interest to fund the YIA Award and Scholarship Money each year, without having to take any principal away from the fund. We are seeking additional sources of funding to help grow this fund to a safe level for reasonable annual withdrawals.

Our Executive Committee also voted to provide \$500.00 in outreach seed money to our colleagues in the United Kingdom in order to help them with their 3rd Annual UK Space Medicine Day which will be held September 30-October 1.

Branch Committee Reports:

Webmaster Report--Mark Campbell reported that the website is linked to the AsMA site, and running. There is a "Members Only" section and an "Executive Committee" section. Mark also reported that a bulletin board is up and running. He is now requesting submissions for this section. Mark Campbell is paying for the memory on the server - it is his donation to the branch. Mark also wanted to start a "lessons learned" section on this website-in the hope that we can learn from past mistakes, so as not to repeat them in the future.

Awards--Smith Johnston gave a report on the Strughold Award Winner for 2006, who is Dr. Jeff Davis (see p. 892 in the August issue of ASEM). Dr Myers - reported on the YIA (7 finalists of 197 potential candidates) The recipient was Candidate 1st Class Donald Aretz, a USAF Academy Student (see p. 892 in the August issue).

Nominations--Jon Clark reported on nominations and elections results as noted above.

Program--Phil Scarpa/Denise Baisden Co-Chairs: This year there were two Branch-sponsored sessions and six endorsed sessions.

Policy--Phil Scarpa distributed the changes to Constitution that were approved in the past year's Business Meeting to enable the 501 (c)(3) application to move forward. As a Past-President, and Policy Chair, Phil took considerable time to give the Executive Committee advice on the proposed changes this year with regard to a potential vote for a name modification from "Space Medicine Branch" to the "Space Medicine Association."

International Activities--Karen Breeck/Alyson Calder Co-Chairs: Alyson Calder was present and gave a report on international membership activities, and the new UK Space Medicine Day conference. She thanked our Executive Committee for voting to provide financial support to help the 3rd UK Space Medicine Day conference this fall.

History--Denise Baisden requested that the committee consider a replacement, since her term expires this year. Art Arnold will take over as the new SMA Historian. Mark Campbell discussed some historic information he found concerning Dr. Strughold. Mark is corresponding with several organizations about and will report back to

See SPACE MEDICINE, p. 998.

SPACE MEDICINE, from p. 997.

the Executive Committee later. Denise Baisden also agreed to Chair the newly revived SMA Membership Committee.

Corporate Individual Donors/ Sponsorship(s)--(As noted above.) The Annual Business Meeting and lecture this year was named the Wyle Lecture in Honor of Wyle's sustained support of our various programs. Judy Hayes agreed to organize a group to seek additional corporate sponsors.

Representative to AsMA Council--Dr. Jon Clark: Phil Scarpa, Jeff Meyers, and Smith Johnston attended. They reported that the Branch initiatives are viewed very favorably by many groups within AsMA, and others are starting to emulate some of our initiatives and efforts.

Representative to the AsMA Nominations Committee--Phil Scarpa reported that several Branch members were nominated and supported for AsMA level office this year. Denise Baisden was elected to a 3-year AsMA Member-at-Large term, and Jeff Myers was elected as one of the four AsMA Vice Presidents. Other members currently serving AsMA-level offices include: Immediate Past-Presidents Melchor Antuñano and Mike Bagshaw, newly inaugurated AsMA President Richard Jennings, Vice-Presidents Jim Webb and Jeff Myers and Aerospace Medicine Regent Jeff Davis. Members-at-Large and AsMA Council Representatives include Jon Clark, Dave Hiland, and Dwight Holland.

New Business--Executive Committee/ Luncheon

Name Modification from "Space Medicine Branch" to "Space Medicine Association." Some extensive discussion occurred with regard to Constitutional and Policy matters. Phil Scarpa helped to frame this aspect of the discussion, while Dwight Holland and Mark Campbell, among others, spoke in favor of bringing this to the membership soon for a Luncheon/Business Meeting vote. The name modification motion was sent to the membership by email in the Spring for review and remarks. Several very positive remarks were sent into the Executive Committee, and it was noted that not a single negative email from the membership in opposition of this modification was received by any Executive



INCOMING SMA PRESIDENT--2005-06 President Dwight Holland (left) hands over the gavel to incoming President Jon Clark (right) while wishing him well.

Committee member. However, one Executive Committee member expressed concern and opposition, stating (essentially) that there was no need to fix something that was not a problem.

A process governed by our Constitutional rules was then initiated to ascertain the will of the membership:

i. A vote to bring forward name modification to membership at this luncheon was carried by the Executive Committee unanimously. And;

ii. A vote for the Executive Committee Members for an endorsement to the membership for name modification at the Luncheon passed

iii. A "voice vote" by the membership to waive a waiting period in order for the vote to actually proceed at that Annual Business Meeting/Luncheon passed.

iv. The votes for a name modification were counted twice, and the result was that 2/3's of the membership present voted to support the Executive Committee's recommendation for modifying the name from the "Space Medicine Branch (of the Aerospace Medical Association)" to the "Space Medicine Association."

Luncheon Speaker--Dr Greg Olsen-the 3rd "Tourist in Space, provided a talk on his personal journey to the ISS. He detailed his struggles to get through the medical qualification and the training he underwent to be able to fly on a Russian Soyuz to the



LUNCHEON SPEAKER--Dr Greg Olsen gives the luncheon attendees a "standing room only" talk on his quest to go into space, his training and his 7-day stay aboard the International Space Station.

International Space Station for a 7-day stay. It was standing room only to hear his well-delivered presentation. President Dwight Holland thanked Dr Olsen for his presentation and valuable time away from his business, and presented him with a special award plaque.

New President Remarks--Dr. Jon Clark thanked the board for all of their hard work, and presented Dwight Holland with a past President's Award plaque for his service to the organization. He then adjourned the Luncheon and Business Meeting.

Finally, I want to personally thank all of the officers and members in the Space Medicine Association for their support of our programs this year. Serving as the President this year was a highlight in my life, and I'll never forget all of the wonderful discussions, shared vision/hope for the future, and our work together over the past several years with our leaders past and present. Godspeed to you all.

Dwight Holland, M.S., M.S.E., Ph.D.
President, Space Medicine
Branch/Association 2005-06



SPECIAL RECOGNITION AWARD--Mark Campbell (left) receives a Space Medicine Branch Special Recognition Award from President Dwight Holland for his website overhaul efforts.



SPECIAL AWARD--Treasurer Genie Bopp (left) receives a Special Award from the Space Medicine Branch from President Dwight Holland for her far-beyond-the-call of duty support of "The Branch" and its programs



WYLE HONORED--Wyle Laboratories CEO George Melton (right) receives a Special Recognition Award from President Dwight Holland for his extraordinary support of the Association and its programs. (Not pictured) Wyle Laboratories Senior Vice President Bob Ellis was also honored for his sustained and committed support.

Aerospace Nursing Society President's Message

The Aerospace Nursing Society (ANS), a constituent organization of the Aerospace Nursing Society (AsMA), has been working together since the Annual Scientific Meeting in Orlando. We continue to network with the parent organization (AsMA) council members toward common goal for the retention and recruitment of members.

We desire to fellowship with all of the Aerospace Medicine Association members. The Executive Council has been extremely supportive of ANS. Our Aerospace Nursing Society is valued. Now is the time to regroup and work together a team. Let's utilize a seamless effective communication pathway so that we can continue to accomplish common goals for the organization by sharing the science and spreading the word to existing and new members.

Based on a component of the ANS Membership Survey that our past president, Dan Roper, compiled and extrapolated data that relates to what our nursing members would like included in their membership was taken to the AsMA Council Members in Orlando. Nursing members would like to see more personal value included in the membership for them. In order to meet the needs of all the aeromedical professions, we agreed that it is most important to submit abstracts, participate in large numbers in the parent organization activities and committees. ANS hear from the members in order determine what would be stimulating to them. Please send me some clear format messages. I will be very glad to present your ideas to the entire association.

To become involved in an AsMA committee, sign onto the website address: www.asma.org/aboutasma/committees.php. It is most important to be active; the organization needs a nursing voice. We do add value and we need to share our unique experiences in Aerospace Nursing in the form of written articles related to past or present air transport experiences. In communication, narratives are excellent educational methods to share information with others now and with future generations.

Let us not forget our members and fellow countrymen who are going to be deployed or are already deployed. Welcome home those members returning home from deployment. It is important that we keep them in our thoughts, and continue our support for the duty time that they provide to our great global society. Continue to be safe as you serve.

Janet L. Sanner, RN, MSN, COHN-S, CCM
President, Aerospace Nursing Society

Join the Aerospace Nurses Society!

Dues are just \$10 (\$5 allied health professionals). For further information, contact:

Diane Fletcher, ANS Treasurer
PSC 2, Box 10849,
APO AE 09012.
Diane.fletcher@ramstein.af.mil

ANS Offers Awards to the Best and the Brightest

The following awards and criteria are listed so that you, the ANS membership, may nominate your peers to be honored at the annual meeting in May. Next year's meeting will be May 13-17, 2007, in New Orleans, LA, and promises to be great.

Mary T. Klinker, Flight Nurse of the Year Award (Named for Capt Mary T. Klinker, Flight Nurse killed in C-5A crash during Operation BABYLIFT)

Recognizes AsMA member for significant contributions to, or achievements in, the field of aeromedical evacuation. (Sponsored by The Aerospace Nursing Society).

Format: See Annual Award form published on website at www.asma.org for details.

Submit by December 15 to:
AsMA Awards Committee Chair, CDR
Andrew Bellenkes:
Andrew.Bellenkes@usafa.af.mil

For the following three awards---
Format: 1 page single spaced or 2 page double spaced narrative

Submit by March 15 to:
Awards Committee Chair/ANS
Charles R. Tupper
2326 Blue Shutter Road
Edisto Island, SC 29438-6620
tupper@bellsouth.net

Hans Krakauer, Junior Flight Nurse of the Year Award (Named for Dr. Hans

AMA, from p. 994.

physicians is available and widely communicated to address the critical needs of those colleagues directly affected by natural disasters such as Hurricane Katrina.

The AMA also adopted policy to commend the Institute of Medicine on its report "In the Nation's Compelling Interest: Ensuring Diversity in the Health Care Workforce." Further it was agreed to encourage medical schools, institutions, organizations and others in the health care industry to adopt these high value diversity goals quickly and effectively.

The AMA resolved that major, comprehensive health system reform, which at a minimum would achieve access to quality healthcare for all Americans, be given the highest priority for the AMA. This would include reform of medical liability, Medicare and Medicaid, insurance coverage, health care disparities, prevention, quality and patient safety.

The AMA House voted to support a requirement that individuals and families earning greater than 500% of the Federal poverty level obtain at a minimum, coverage catastrophic health care and evidence based preventive health care services.

Krakauer, recognizing appreciation of flight nurses caring for patients)

Honors an AsMA/ANS member for outstanding professional accomplishments in aerospace clinical practice, education management, and/or research by a company grade officer or civilian equivalent. (Sponsored by the Krakauer Family).

BG E.A. Hoefly Award (Named for BG E.A. Hoefly, AF/SGN from 1968-74)

Recognizes AsMA/ANS member for significant contributions to, or achievements in, the field of nursing (other than flight nursing) by a company grade officer or civilian equivalent.

Edward R. Iversen Sr., Allied Health Professional of the Year Award (technician level award) (Named for Mr Edward R. Iversen Sr., a WWII enlisted Navy member in appreciation of EMT/Paramedic assistance)

Recognizes AsMA/ANS member or technician member (membership requirement waived until 2009) for significant contributions to, of achievements in, the field of in-flight medical care. (Sponsored by the Iversen Family).

BG Claire M. Garrecht Award (Named for BG Claire M. Garrecht, AF/SGN from 1974-78)

Recognizes AsMA/ANS member for the best scientific paper presented at the AsMA Annual Meeting. (Sponsored by Educational Enterprises, Inc)

Format: Submit entire paper
Submit by March 15 to the **Awards Committee Chair/ANS**.

A wide array of Medicare and Medicaid issues were addressed including the critical Medicare reimbursement policy which affects TRICARE reimbursement. This issue continues to get our focused attention due to the negative impact on access to care for many of our Association constituents if a workable solution can not be found to avert projected substantial provider reimbursement decreases over the next 5 years.

We are pleased to note that the newly elected President-elect of the AMA is Dr. Ron Davis, a preventive medicine specialist and long-time member of our AMA Section Council on Preventive Medicine. We would hope to host him at our annual meeting during his landmark tenure as the leader of organized medicine in the U.S. Remember, our leadership voice in aviation, space, and environmental medicine at the national level is in great part due to our highly respected participation in the AMA. Our participation in turn is only possible through your membership in AMA as well as our Association.

We most strongly encourage all our members eligible for AMA membership to make the commitment and join to support us in this critical endeavor.

WING NEWS & NOTES

Send information for publication on this page

to: **Dale Orford**
15516 E Acacia Way,
Fountain Hills, AZ 85268
480-837-7919; dorford@cox.net

Message from Our President: Aloha Wing Sisters!

After the fabulous meeting in Orlan-do, re-newing friendships and making new friends, I think we can consider ourselves "sisters"! A huge thank you once again to Trish and her board for all their work in making it such a wonderful time.

That is one of the things I love about being a member of the Wing. Not only do I have the opportunity to develop friendships from all over the world, but I also have the opportunity to explore new places...and sometimes, I get to re-discover favorite places I have visited before. I always look forward to our annual meeting with great anticipation!

Diane Okonsky-Hudson, Lin Beane and I joined forces for the New Orleans site visit in July. Wow! We are going to have a fabulous meeting in 2007. The city's motto is "Let the good times roll!" and that is exactly what we are going to be doing! We will be situated in two stunning hotels, the Sheraton and the Marriott, that face each other across historic Canal Street with views of the mighty Mississippi River on one side and the classic streetcars and French Quarter on another. The hotels are right on the edge of the French Quarter with wonderful restaurants and shopping galore.

If you love antiques, Royal Street is lined with beautiful shops. If you love the hustle and bustle, cling and clang of the casino, world famous Harrah's is one block down and the Riverwalk Market-place is just on the other side. The famous French Market, Jackson Square, and the St. Louis Cathedral are all within walking distance.

Our biggest problem is going to be deciding which of the many tours and activities to schedule! Lin is going to be checking out the many possibilities. Some of her ideas included a morning at a New Orleans Cooking School, a trip on the river in a paddle wheeler, a visit to the aquarium, or a tour of the beautiful old plantations. We are all going to wish we had several extra days to explore the area! Dianne

has scoped out some great sites for our Hospitality/Registration Room, the Welcome Reception and the Wednesday Luncheon. More details will follow in upcoming Wing pages, so be sure to keep checking this page during the year.

I hope that you all have had a lovely summer and are looking forward to fall activities. Here in Hawaii, we don't have the beautiful fall foliage, so those of you who do, please enjoy it for me!

A Hui Hou until next time!
Conoly

Meet the Wing's Board: New Orleans 2007

The Wing is pleased to welcome back so many returning Board members - your continued participation, hard work, and enthusiasm for the Wing is greatly appreciated. It is what makes the Wing such a wonderful organization. We are also delighted to introduce several new members to this year's slate. Dianne Okonsky-Hudson will be handling the very important task of Arrangements; Nedra Musashe and Brigitte Pongratz will be organizing the Hospitality Suite, and Lynn Weiss will be joining Melinda Beane in setting up the Tours.

Brigitte Pongratz grew up in the small town of Bamberg, north of Bavaria in Germany before moving on to Munich, where she currently lives with her husband, Hans. She attended the University of Munich, studied medicine, and later trained at the Central Hospital of Starnberg just north of Munich where her father was the head of the Radiology Division. In 1985 she began her practice as a general practitioner with certification in naturopathic medicine and continues her work at a clinic in Munich. The Pongratz's have three children - Eleonore and Hans, both born at Brooks, and younger son, Andreas. When not working, Brigitte spends most of her time mountain hiking, reading, listening to music, gardening, sailing and bee-keeping at a small weekend house outside of Munich.

Lynn Weiss is a native New Yorker. She became a registered nurse after she married and her husband, Bernie, in his surgical practice before they retired to New Orleans. Lynn and Bernie enjoy traveling. Their first cruise was to Antarctica in 1987 on the *World Discoverer*, an expedition cruise. They must have enjoyed the cold, as they followed that up with a cruise to Greenland aboard a Russian ice-breaker. They even had a picnic on the ice! They circled all of the time zones before returning to Spitzbergen via Franz Joseph Land. Last year took them to China and Mongolia - they left just 2 days before Hurricane Katrina hit and so missed all of the excitement. As Tours committee-chair, Lynn will have lots of ideas about what to see and do in New Orleans, and we are looking forward to exploring her adopted city.

Dianne Okonsky-Hudson, was born at Camp Pendleton, CA, the daughter of a career Marine, and has followed her father into the Armed Forces. After completing nursing school, Dianne worked in Monterey, CA, before deciding to pursue a Nurse Practitioner degree during which time she was recruited into the Navy. One of her most memorable tours was in Guam, where she received the Ancient Order of the Chamorro, an honor bestowed upon individuals who have made a difference in the lives of the people of Guam, presented by the Governor of Guam. Dianne and her husband, George, currently reside in Orlando, where George is in medical practice. They were married in December of 2002, but as they are both reservists, they weren't too sure that the wedding was going to happen. George had received orders to "stand-by"! Fortunately, the ceremony went off without a hitch, but several weeks later, they were both recalled and ended up at posts about 9 hours apart. Dianne currently works for the University of Central Florida student health department and continues to drill as an executive officer for a unit out of Jacksonville, FL. In addition, Dianne volunteers at her local health clinic, community schools, and church. Amazingly, she still finds time for a few hobbies, including needlework, gardening, physical fitness, cooking, reading and travel. Dianne brings a great deal of energy and enthusiasm to her role as our Arrangements Chair, and we look forward to her continued support of the Wing.



(Left) 2006-07 WING BOARD. (Above) Harriet Hodgson checks out the Florida wildlife.

NEWS OF MEMBERS

Send information for publication on this page to: **News of Members**
Aerospace Medical Association
320 S. Henry Street
Alexandria, VA 22314-3579
pday@asma.org

David R. Jones, MD, MPH, is almost at the point of being fully retired, which means he's looking at a lifetime accumulation of papers, books, and other accretions. Through correspondence with Richard Jennings, MD, MPH,



he has made arrangements to ship boxes of these materials to the University of Texas Medical Branch in Galveston, TX, at their expense. There his "stuff" will be sorted and classified by librarians at the Charles A. Berry Space Medicine Library, a section of

their larger History of Medicine collection. The value of such disposition of aeromedical/psychiatric documentation lies in its availability to future students and scholars who wish to pursue their own interests in these fields.

Donation to an aeromedical library—and there are several in the U.S. and abroad—assures public access through the Internet and its search engines, as well as by visits to the library itself. Dr. Jones hopes that others of his generation will consider such measures.

CDR Andy Bellenkes, USN, Colorado Springs, CO, has recently had a permanent change of station to Military Assistant Professor, U.S. Air Force Academy, Behavioral Sciences & Leadership Dept., Colorado



Spring, CO. This is an "exchange billet" that the Navy has had in this department at the Academy for many years. It is traditionally occupied by a Navy Aerospace Experimental or Research Psychologist. Andy will be teaching a course of his own design on Aviation Psychology and Human

Factors. Next semester he continues this series with a course on Human Error and will also become Director for the department's Human Factors program. CDR Bellenkes received his 3rd the Meritorious Service Medal for accomplishments whilst serving in his former position as Head, Science & Technology / Research & Development, Chief of Naval Operations, Washington, DC.

New Members

Babicki, Joseph W., B.Sc., M.B., B.S., London, UK
 Flatt, Justin, M.B., B.Ch., BAO, Magheralin, UK
 Jayasinghe, Anoma D., M.B., B.S., M.D., Katunayake, Sri Lanka
 Piazza, Thomas R., M.D., M.P.H., San Antonio, TX
 Sullivan, Michael S., LCDR, MC, USN, Beaufort, SC
 Vuorio, Alpo, M.D., Ph.D., Finnair, Finland

Gisselle Vargas joins staff

Gisselle Vargas has joined the AsMA Home Office staff. She is our new Office Manager. In addition, she will be our



Information Technology person and perform many of the Administrative Assistant duties that Jackie Carter did for so many years at AsMA. (Jackie retired at the end of June).

Gisselle is currently studying Criminal Justice and Psychology at Northern Virginia Community College. Before coming to work for AsMA she had been employed by the Construction

Specifications Institute for 10 years, where she worked her way up from receptionist to customer service, to quality assurance, to information technology.

Gisselle is a native of Brooklyn, NY. Her parents hale from the Dominican Republic and Puerto Rico. She has a younger brother. She currently lives in Woodbridge, VA.. She loves singing and writing music. You can contact Gisselle at the home office at (703) 739-2240, x104; gvargas@asma.org.

INDEX TO ADVERTISERS

Aerospace Medical Association	
Call for Papers	iii
Corporate Members	1002
Information for Authors	..Cover III
Membership Application	ii
ETC	Cover IV

MEETINGS CALENDAR 2006-2007

September 10-14, 2006, Bangalore, India. 54th International Congress of Aviation and Space Medicine. This meeting is being hosted by the Indian Society of Aerospace Medicine. A preliminary registration form may be found at <http://www.isam-india.org/conference44/newreg.php>.

September 30-October 1, 2006, National Space Center, Leicester, UK. 3rd UK Space Medicine Conference. For more information, please contact Alyson Calder: alysocalder@doctors.org.uk.

October 5-8, 2006, Ottawa, Canada. Civil Aviation Medical Association Annual Scientific Meeting. Info: Jim Harris, CAMA, P.O. Box 23864, Oklahoma city, OK 73123-2864; (405) 840-0199; JimLHarris@aol.com.

October 5-7, 2006, La Jolla, CA. The Frontiers of Clinical Investigation: Bench to Bedside. For more information, please visit: <http://www.nature.com/nm/meetings/cii/index.html>

October 10, 2006, Arlington, VA. Pandemic Influenza: Principles and Techniques for Communicating Effectively in High Stress and High Concern Situations Workshop at the Sheraton National Hotel. For more information, contact Pamela Greenstein at 703-807-2758 or at pgreenstein@marketaccess.org or visit www.homelanddefensejournal.com/hdl/conf_fluworkshop.htm

October 11-14, 2006, Chicago, IL. 2006 Biomedical Engineering Society Annual Fall Meeting. Info: BMES, (301) 459-1999; info@bmes.org, <http://www.bmes.org>.

October 11-12, 2006, Arlington, VA. Preparing for Pandemic Influenza. For more information, contact Pamela at 703-807-2758 or at pgreenstein@marketaccess.org or visit www.homelanddefensejournal.com/hdl/conf_influenza.htm

October 15-16, 2006, San Francisco, CA. 4th Annual Meeting of the Society for Human

Performance in Extreme Environments. Info: Jason Kring, (386)323-8045; jason.kring@erau.edu, <http://hpee.org/>.

October 16-20, 2006, San Francisco, CA. Human Factors and Ergonomics Society 50th Annual Meeting. Info: info@hfes.org; <http://www.hfes.org/web/HFESMeetings/06annualmeeting.html>

October 16-20, 2006, Moscow, Russia. 5th International Scientific and Practical Congress. For more info, please call Mr. Valentin Vlasov at 095-953-5842, or Mrs. Dina Valeeva or Mrs. Natalia Mitrokhina at phone/fax 095-239-9851; or e-mail medic@mak.ru, attn: Mr. Vlasov V.D. or e-mail infan.ltd@relcom.ru, attn: Mr. Gabbasov I.Z.; or by fax at 095-953-3508.

October 19-21, 2006, Kauai, Hawaii. US/Japan Panel on Diving Physiology, Diving Technology, and Aerospace Medicine biennial meeting. Abstracts are to be submitted to Don Chandler at donchandler@uhms.org or submitted online at http://www.uhms.org/Meetings/US_JAPAN/UJNR_06.ASP

October 23-25, 2006, Reno, NV. SAFE Association 44th Annual Symposium. For more info: Ms. Jeani Benton, (541) 895-3012; safe@peak.org; www.safeassociation.org.

November 2-3, 2006, London, UK. Aviation Health: Tackling the Issues. Full details can be found at www.quaynote.com or contact Alison Singhal via e-mail or phone +44 (0) 20 8374 6474

November 8-11, 2006, Huatulco, Oaxaca, México. XXIII International Meeting of Aerospace Medicine, sponsored by the Mexican Association on Aviation Medicine, A.C. General Theme: Advances in Clinical Aerospace Medicine. For additional information, please contact: www.amma.org.mx or lamezcua@att.net.mx

November 9-12, 2006, Eilat, Israel. Air Travel and Health. This symposium will deal with flight physiology and a wide array of health issues in air travelers. For more info, visit www.palexconventions.co.il/ath2006.

Corporate and Sustaining Members of the Aerospace Medical Association



The financial resources of individual members alone cannot sustain the Association's pursuit of its broad national goals and objectives. Its 77-year history is documented by innumerable medical contributions toward flying health and safety that have become daily expectations by the world's entire flying population—commercial, military, and private aviation. However, support from private and industrial sources is essential. The following organizations, who share the Association's objectives or have benefitted from its past or current activities, have affirmed their support of the Association through Corporate Membership.

Aeromedic Innovations	International SOS Assistance, Inc.
Air Canada	Japan Airlines
Air Line Pilots Association	Kelsey-Seybold Clinic
Aircraft Owners and Pilots Association	Korean Air Force Safety Center (AFSC)
AirSep Corporation	Lockheed Martin Corporation
American Airlines	Martin-Baker Aircraft Company Ltd.
Autoflug Libelle GmbH	Mayo Clinic Aerospace Medicine
Aviation Medicine Center at UTMB	MedAire, Inc.
Baxter Healthcare Corporation	Pilot Medical Solutions, Inc.
Bionetics Corporation	Sanofi-Aventis Pharmaceuticals
Carleton Life Support Systems Inc.	South African Airways
Comprehensive Health Services, Inc.	SpecPro, Inc.
David Clark Company, Inc.	Stereo Optical Company, Inc.
Education Enterprises, Inc.	United Airlines
Environmental Tectonics Corporation	United States Aviation Underwriters
Essilor of America/Varilux	Universities Space Research
Gentex Corporation	Association (USRA-DSLS)
International Federation of Air Line	Harvey W. Watt & Company
Pilots Associations	Wyle Laboratories, Inc.