

# President's Page

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It has been gratifying to serve as the president of the Aerospace Medical Association. The aerospace medical community continues to be an extremely diverse and interesting group that strives to meet the challenges of civil, commercial, and military aviation and space operations in the 21<sup>st</sup> century. When introduced as the new president of the Aerospace Medical Association (AsMA) at Honors Night in Orlando, I announced three major priorities for the Association for completion during this term. These included the development of a Foundation to support aerospace medicine, assuring that the meeting in New Orleans following Katrina would be successful, and making AsMA more responsive to the important aeromedical issues of the day.

As most of you know, the Aerospace Medical Association Foundation has been established and approved by the IRS with the diligent help of Russell Rayman, the AsMA attorneys, the executive committee, and the initial AsMA Foundation Board. Even before formal IRS approval, several companies such as Wyle Laboratories and individuals like Russell Rayman and the other authors of *Clinical Aviation Medicine* made major contributions to the Foundation. The Board will be working diligently in partnership with those in this field to create the financial strength to support our young members in the pursuit of aerospace medicine. While initially fund raising will be the first priority, it is anticipated that the Foundation will soon have general funds that the Board can distribute for scholarships, seed grants for research projects, and other avenues of support within the guidance of the Foundation bylaws. In addition to unencumbered funds, we are confident that some members will want to endow specific programs or named scholarships or grants so that their gift can grow and support this field for many generations. While there may be certain pressures on AsMA's membership numbers due to research laboratory closures and the reduced number of pilots in the military, there are currently many areas of expanding activity, such as in commercial spaceflight. It is my hope that the Foundation will be an important factor in supporting the growth of young members in the aerospace medicine and related fields.

The second priority was making the New Orleans meeting special and financially sound. With the help Russell Rayman, the home office staff, Walt Galanty, Tom Dozier, the FAA, the AsMA Wing, program chair Joe Dervay and local events chair Bob Johnson, the New Orleans meeting looks fantastic. I am extremely grateful to the physicians, nurses, physiologists, and scientists who have submitted abstracts for presentation and to those who established the five state-of-the-art workshops for Sunday and created several special panels for the meeting. This is the heart of our meeting.



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

Susan Northrup, with the help of Pam Day, has streamlined the Maintenance of Certification process and 126 hours of MOC sessions will be available compared to 21 hours last year. Special thanks go to companies and individuals that have offered to financially support our meeting including Mayo Clinic, Kelsey-Seybold Clinic, Wyle Laboratories, UTMB, Environmental Tectonics Corp., Dick Trumbo, and Bob Johnson. In addition, Kjell Lindgren has arranged a volunteer day for AsMA members to help construct homes in New Orleans through Habitat for Humanity. What a great way for AsMA to be a good guest in this wonderful city that has experienced so much recent difficulty!

One must also mention disappointments, and unfortunately we have not been that successful in making AsMA more responsive to the important aeromedical issues of the day. I had hoped that AsMA could develop a system to respond with evidence-based information for the rapidly evolving issues that affect our industry. The advent of 24/7 cable news, internet text messaging and blogs, worldwide jet travel, short media attention span, and the importance of issues that emerge periodically seem to make this capability imperative. We need to be responsive to issues like the aeromedical implications of bird flu, emerging infectious illness and biohazards, DVT in long-duration flight, cabin altitude and cabin air quality, pilot age-60 rule, periodicity of medical exams, fatigue countermeasures in long-haul pilots, and medical certification of UAV operators. If AsMA is to be a player in the events of the day, we need a system for timely response that goes beyond resolutions and the executive director answering media inquiries. Those from AsMA who communicate with the media, public, and government agencies need quality position papers and timely evidence-based information from AsMA's committees and constituent organizations. Our improved web site could become a great resource for distributing this information. I have been disappointed that many assign-

*See PRESIDENT'S PAGE, p. 541.*

## Medical News

### NASA Administrator, Michael Griffin to Present Bauer Lecture

The 53rd Annual Louis H. Bauer Lecture is scheduled to be given during opening Ceremonies of the Aerospace Medical Association's 78th Annual Scientific Meeting May 14, 2007, at the Sheraton Hotel, New Orleans, LA. This year's speaker is Michael Griffin, NASA Administrator.

Nominated by President George W. Bush and confirmed by the United States Senate, Michael Griffin began his duties as the 11th Administrator of the National Aeronautics and Space Administration on April 14, 2005. As Administrator, he leads the NASA team and manages its resources to advance the U.S. Vision for Space Exploration.

Prior to being nominated as NASA Administrator, Griffin was serving as Space Department Head at Johns Hopkins University's Applied Physics Laboratory in Laurel, MD. He was previously President and Chief Operating Officer of In-Q-Tel, Inc., and also served in several positions within Orbital Sciences Corporation, Dulles, VA, including Chief Executive Officer of Orbital's Magellan Systems division and General Manager of the Space Systems Group.

Earlier in his career, Griffin served as chief engineer and as associate administrator for Exploration at NASA, and as deputy for technology at the Strategic Defense Initiative Organization. He has been an adjunct professor at the University of Maryland, Johns Hopkins University, and George Washington University, where he taught courses in spacecraft design, applied mathematics, guidance and navigation, compressible flow, computational fluid dynamics, spacecraft attitude control, astrodynamics, and introductory aerospace engineering. He is the lead author of more than two dozen technical papers, as well as the textbook, Space Vehicle Design.

A registered professional engineer in Maryland and California, Griffin is a member of the National Academy of Engineering and the International Academy of Astronautics, an honorary fellow of the American Institute of Aeronautics and Astronautics (AIAA), a fellow of the American Astronautical Society, and a member of the Institute of Electrical and Electronic Engineers. He is a recipient of the NASA Exceptional Achievement Medal, the AIAA Space Systems Medal, and the Department of Defense Distinguished Public Service Medal, the highest award given to a non-government employee.

Griffin received a bachelor's degree in Physics from Johns Hopkins University; a master's degree in aerospace science from Catholic University of America; a Ph.D. in aerospace engineering from the University of Maryland; a master's degree in electrical engineering from the University of Southern California; a master's degree in applied physics from Johns Hopkins University; a

master's degree in business administration from Loyola College; and a master's degree in civil engineering from George Washington University. He is a certified flight instructor with instrument and multi-engine ratings.

### Virgin Galactic's Alex Tai to Give Armstrong Lecture

The 42nd Annual Harry G. Armstrong Lecture is scheduled for Thursday, May 17, 2007, during the AsMA's 78th Annual Scientific Meeting, Sheraton Hotel, New Orleans, LA. This year, Alex Tai, Chief Operating Officer, Virgin Galactic is the scheduled speaker. Mr. Tai performs a number of roles within the new Spaceflight industry. In addition to his role as Chief Operating Officer for Virgin Galactic (VG) he is Chairman of the Personal Spaceflight Federation (PSF) and an officer of The Spaceship Company LLC (TSC).

Alex Tai first learned to fly gliders when he was 16 and received his pilot's license at 17. Trained as a pilot in the UK Royal Air Force he went on to fly executive jets and holds a number of World records for flights with the U.S. adventurer Steve Fossett, including around the world east and west about in class. He joined Virgin Atlantic when he was 27 and became one of their youngest captains at 30. He remains in active service as a Captain of the Airbus A340 the longest airliner in the world at present. He then embarked on special projects for Sir Richard Branson. Alex has been working on the Galactic project from conception, standing next to Paul Allen and Burt Rutan in mission control at the first X Prize flight.

As Chairman of the PSF Alex believes that building the regulatory and legislative founda-

tions for the emerging industry are his primary goals.

In his capacity as a company officer for TSC he is determined that the SS2 system and other systems to follow will mark a step change in levels of safety and affordability for human space access.

Mr. Tai is also training to be a commercial pilot for and is supervising the design and construction of the new passenger-carrying SpaceShipTwo (SS2). In his role as COO for VG, Alex is responsible for bringing the SS2 system into commercial service. He will build the flight operations programme at Mojave in California before expanding operations to Spaceport America in New Mexico. Leading the way, he will pilot the first commercial flight of SS2.

### MEETINGS CALENDAR 2007

**May 8-10, 2007, Tucson, AZ.** 52nd Corporate Aviation Safety Seminar (CASS). For more information, visit [www.flight-safety.org/seminars.html](http://www.flight-safety.org/seminars.html) or contact Namratha Apparao, Membership Services Coordinator, Flight Safety Foundation, 601 Madison St., Ste. 300, Alexandria, VA 22314-1756; 703-739-6700; FAX 703-739-6708.

**May 23-24, 2007, London, UK.** Flight Simulation Data, Interoperability, and Re-Use: Are We Achieving the Dream? For more info, contact Marta Collins, Conference and Events Organiser, Royal Aeronautical Society, No. 4 Hamilton Place, London W1J 7BQ, UK; [marta.collins@raes.org.uk](mailto:marta.collins@raes.org.uk); +44 (0)20 7670 4342.

**June 26-27, 2007, London, UK.** The Future for Helicopters in UK Public Service. For more info, contact Marta Collins, Conference and Events Organiser, Royal Aeronautical Society, No. 4 Hamilton Place, London W1J 7BQ, UK; [marta.collins@raes.org.uk](mailto:marta.collins@raes.org.uk); +44 (0)20 7670 4342.

**October 29-31, Grand Sierra Resort & Casino Hotel, Reno, NV.** SAFE Association 45th Annual Symposium. For more info, call (541) 895-3012, Fax (541) 895-3014, e-mail [safe@peak.org](mailto:safe@peak.org), or visit [www.safeassociation.com](http://www.safeassociation.com) or [www.safeassociation.org](http://www.safeassociation.org).

**November 1-2, 2007, Holiday Inn Regents Park, London, UK.** Second Annual Aviation Health Conference. For more information, visit [www.quaynote.com](http://www.quaynote.com). For sponsorship or speaking opportunities, contact [lorna@quaynote.com](mailto:lorna@quaynote.com) or phone 44-20-8531-6464.

**Postponed until 2008.** Human Performance, Situation Awareness, and Automation (HPSAA III) Technology Conference. Info: Mustapha Mouloua, Conference Chair, 407-823-2910, [mouloua@pegasus.cc.ucf.edu](mailto:mouloua@pegasus.cc.ucf.edu), <http://faculty.erau.edu/hpsaa/>.

### EXPERT WITNESS POLICY STATEMENT

*(Approved by AsMA Executive Committee,  
March 1, 2007)*

The giving of expert witness testimony by a member of our Association is considered the practice of the member's profession, including aerospace medicine or an allied health care profession represented by the Association. The AsMA member called upon to provide expert testimony should testify only about those subjects for which the member is qualified as an expert by training and experience. Before giving testimony, the member should carefully review all relevant records and facts and in giving testimony, provide only scientifically based opinions. AsMA encourages impartiality in expert witness testimony and condemns false or misleading testimony. Compensation for testimony should be reasonable and commensurate with time and effort spent and must not be contingent upon case outcome.

## This Month in Aerospace Medicine History-- May 2007

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

### Seventy-five Years Ago

*First woman to fly solo across the Atlantic:* Amelia Earhart was the first woman to fly solo across the Atlantic, accomplishing this feat in 14 h, 56 min in a Pratt & Whitney Wasp-powered Lockheed Vega. She took off from Harbor Grace, Newfoundland, on May 20, 1932, and landed in Ireland the following day. This marked the 5-yr anniversary of Charles Lindberg's solo trans-Atlantic flight. In response, Earhart was awarded the National Geographic Society's gold medal by President Herbert Hoover, and the Distinguished Flying Cross by Congress. She also wrote the book, "For the Fun of It," about her flight (7, 8).

*Global knowledge required by the flight surgeon (Chief, Medical Division, Air Corps, United States Army):* "Although the contributions to aviation by scientific study and the application of its evolved conclusions appears as a monument to the medical profession, many opportunities still present to improve safety of aircraft operation and to increase the normal flying capacity of pilots in the performance of varied missions..."

"Experience has taught us three lessons:

"1. The undeviating maintenance of high physical standards is essential to safe and successful flying.

"2. There are mental, nervous, and emotional qualities which a flyer must possess of equal or greater importance in flying training and to give assurance of a reasonable period of flying.

"3. The neuro-psychic set-up and the reactions to stimuli must be harmonized to physical function in the air environment....

"A few flight surgeons have erroneously recognized their duties as limited to examination and observation of flying personnel from a purely physical standpoint. Aviation Medicine as a specialty now and always will demand a thorough knowledge of general medicine. Its existence as a specialty lies in that knowledge into special branches of medical science such as psychology, psychiatry, ophthalmology, otology and applied physiology. The ability to approach and have access to the manifestations of those qualities (emotional, mental and nervous) which stamp the individual qualities of the flyer and determine by his conduct and reactions his immediate and remote capacity to "carry-on" in his flying work is the highest desideratum. This only comes with 1) a personality which inclines to human understanding, 2) training in those specialties so important in the management of the flyer, and 3) continuous application of knowledge and effort to encourage and maintain a proper mental attitude toward flying and the high state of physical well-being demanded by the effects of the vicissitudes of flying" (4).

### Fifty Years Ago

*Annual meeting held one mile high:* The 28th annual meeting of the Aero Medical Association was held at the Shirley Savoy Hotel, Denver, CO, May 6 through 8, 1957. More than 175 speakers were featured, with

panels including "The Medical Problems of the Jet and Turbo-Jet Age," "The Forthcoming Air Transport," as well as "Space Travel" (1).

*The fear of blood boiling at altitude (U.S. Naval School of Aviation Medicine, Pensacola, FL):* "The effect of tissue boiling is one of the many hazards to be considered in high altitude flight. In physical terms a liquid is boiling when its vapor pressure at the prevailing temperature equals the ambient pressure. The phenomenon of boiling must be expected when man is exposed to an ambient pressure of about 47 mm Hg or less at altitudes over 64,000 feet. The term 'boiling' exerts an alarming effect on the flyer possibly exposed to this phenomenon at high altitude...."

"Cold blooded animals, resistant to anoxia, were exposed to ambient pressures equal and below the vapor pressure of their body fluids at room temperature.

"The boiling phenomenon of tissue which must be expected at altitudes above 64,000 feet was not found to be the violent bubbling process which we know from experience at normal atmospheric pressure. It is mainly an accelerated surface evaporation without bubble formation and heat denaturation of the colloidal structure of the plasma. The chief damage to tissue exposed unprotected to extremely low ambient pressure will be caused by water loss with ensuing dry out and freezing" (2).

### Twenty-five Years Ago

*Consideration of potential cardiac damage in +Gz exposure (Oral Roberts University School of Medicine, Tulsa, OK):* "The available information concerning the subendocardial hemorrhage, myofibrillar degeneration, and necrosis observed in miniature swine after acute +Gz exposure, is reviewed and evaluated for any possible occurrence of similar pathology in humans. It is concluded that +Gz exposure poses no significant risk for cardiac damage in humans. Three primary considerations lead to this conclusion: 1) The lesions in swine probably result from very high (toxic) levels of both sympathetic adrenergic tone to the heart and circulating plasma catecholamines acting on the cardiac cells. Most of these catecholamines appear to be released as a result of the overall stress involved in exposing conscious miniature swine to +Gz on the centrifuge, and not directly as the results of the +Gz per se. Thus, the lesions in miniature swine appear to develop as a consequence of a somewhat unique form of the porcine stress syndrome. 2) +Gz exposure is not as psychologically stressful for humans. Therefore, humans would not be expected to have, and do not appear to have, catecholamine levels (cardiac or systemic) as high as those observed in miniature swine during +Gz stress. This conclusion is supported by direct comparisons of the heart rate and plasma catecholamine levels in men and miniature swine during +Gz exposure. 3) Although a large amount of clinical cardiologic data exists from humans who have been exposed to +Gz stress, none of these data indicate any degree of cardiac damage" (5).

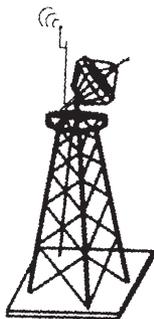
*Propeller-to-person accidents (FAA Civil Aeromedical Institute, Oklahoma City, and Office of Airworthiness, Washington, DC):* "While propeller and rotor paint schemes may serve to reduce the number of fatalities and injuries due to contact with a rotating blade, there is little information about the circumstances surrounding such accidents. Brief reports provided by the National

Transportation Safety Board of all 'propeller-to-person' accidents from 1965-1979 were examined and analyzed in terms of airport lighting conditions, actions of pilots, actions of passengers and ground crew, phase of flight operations, weather conditions, and others. Analyses based on 319 accidents showed a marked drop in the frequency of 'propeller-to-person' accidents from 1975 through 1978. Several types of educational efforts directed toward pilots and ground-crew, both prior to and during the 4-year period, were examined as possible factors contributing to the accident rate decline. Accident patterns provide a basis for assessing the probable efficacy of various recommendations, including propeller conspicuity, for further reducing 'propeller-to-person' accidents" (3).

*Illusions in runway size (FAA Civil Aeromedical Institute, Oklahoma City):* "In Experiment I, three pilots flew simulated approaches and landings in a fixed-base simulator with a computer-generated-image visual display. Practice approaches were flown with an 8,000-ft long runway that was either 75, 150, or 300 ft wide; test approaches were to runways with widths of 75, 100, 150, 200, and 300 ft. In Experiment II, 40 pilots controlled the slant of a moving model runway during simulated night visual approaches. Five different models simulated runways from 100 to 300 ft wide and 3,000 to 9,000 ft long. As predicted, training on a wide runway in Experiment I lowered approach angle in approaches to narrower runways; a narrow practice runway also raised approach angles to wider runways. The magnitude of these practice effects increased as distance from runway threshold decreased. There was also a general tendency for approach angles to decrease as runway width decreased. The latter effect was corroborated in Experiment II; in addition, generated approach angles decreased with increasing runway length. Giving half the pilots information about runway size prior to each approach had no effect on responses. These findings add to the quantitative evidence of danger in night visual approaches due to visual illusions and large variability in the visual perception of approach angle" (6).

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## Science & Technology Watch

### Keeping You Informed Of The Latest Advances In Science And Technology

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If you have not taken advantage of the ever increasing availability of open-source software tools, this month's edition of the Watch provides a quick overview.

For a more in-depth introduction, please join us at the "Open-source Software in Aerospace Medicine and Physiology" panel co-sponsored by the S&T Committee and LSBEB at the 78th AsMA Scientific Meeting in New Orleans on Monday May 14 at 10:30 in the Sheraton Rhythms 3 room.

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### Open Source Software in Research

William Fraser, Human Systems Engineering Section, Defence R&D Canada - Toronto

Open-source software (OS), sometimes called FOSS (Free and open-source software), usually refers to operating system and application software that is distributed under licensing arrangements such as the GNU General Public (GPL) or BSD licenses. The source code is usually available and can be modified and redistributed as long as the licensing terms are respected, although there can be some subtle restrictions.

The most famous open-source software is the Linux operating system ([www.linux.org](http://www.linux.org)) which runs on more hardware platforms than any other OS, and is especially popular for larger organizations and many web hosting sites, running on small and large servers. It was coded as a Unix-like system by Linus Torvalds, when he was an undergraduate at the University of Helsinki, and he continues to direct the development of the kernel. There are numerous distributions of Linux (referred to as distros), some focused on commercial use and some more compact and/or easier for the individual user to install, maintain, and upgrade. There are even portable distros that require no installation and run from a CD or DVD disk on any PC. Distros can be downloaded from various Web sites and a number of the magazines devoted to Linux include DVDs every month with different distros and application software.

Due to its use in the supercomputing environment involving thousands of linked CPUs, and its increasing popularity on the desktop, Linux has had a major impact on scientific research, especially as popular commercial packages such as MATLAB are available for the OS and products such as Wine ([www.winehq.com](http://www.winehq.com)) and the commercial VMWare ([www.vmware.com](http://www.vmware.com)) allow the running of software designed for the Windows environment. However a more significant impact has been the development of open-

source applications, originally only available for Linux, but now often available for the Windows environment. The cost-savings can be considerable, especially for research programs on a tight budget. Probably the most popular application is the OpenOffice suite ([www.openoffice.org](http://www.openoffice.org)), which provides a rich integrated environment similar to Microsoft Office including word processing (with mathematical equations), spreadsheet, presentation, and database capability. For large, complex scientific papers and reports, involving significant mathematical formulae, images, and figures, the LaTeX markup language ([www.latex-project.org](http://www.latex-project.org)) is often preferred, as one can easily "tweak" the format and layout of the document, and files are in plain ASCII text.

Though not as well known, there a number of other open-source tools available to the research community. One of the most popular is R ([www.r-project.org](http://www.r-project.org)), a very powerful object-oriented programming language. Its advanced statistical analysis and data display capabilities are maintained by the R Foundation for Statistical Computing and supported by some of the world's top academic statisticians and pharmaceutical companies. Currently there are over 800 add-on packages and utilities providing advanced analysis capabilities and interfaces to other languages and applications. In addition to R and the open-source spreadsheet applications, packages such as Octave ([www.gnu.org/software/octave/](http://www.gnu.org/software/octave/)), OpenDX ([www.opendx.org](http://www.opendx.org)), SCIRUN ([software.sci.utah.edu/scirun.html](http://software.sci.utah.edu/scirun.html)), and EEGLAB ([www.secn.ucsd.edu/eeGLab](http://www.secn.ucsd.edu/eeGLab)) provide additional capabilities, especially for the analysis and display of time-series data. OpenDX, for example, has a sophisticated GUI-based data-flow analysis and visualization capability for multi-dimensional data.

To supplement these data analysis tools, which also provide an almost unlimited capability for customized plotting and graphing of complex data sets, the open-source movement has produced a sophisticated set of multi-platform visualization tools for the researcher that often surpass the capability of commercial products. For the generation of schematics and cartoon models of concepts, systems, etc., packages such as XFig ([www.xfig.org](http://www.xfig.org)) are more than sufficient for the majority of users. Inkscape ([www.inkscape.org](http://www.inkscape.org)) is a more recent scaled vector graphics (SVG) drawing application that enables unlimited scaling of drawings without the distortion seen with bitmapped drawings. The page layout package Scribus ([www.scribus.net](http://www.scribus.net)), combined with the image manipulation program GIMP ([www.gimp.org](http://www.gimp.org)), enables professional quality integration of graphics and text for slides, scientific posters, and promotional material. The 3D software Blender ([www.blender.org/cms/Home.2.0.html](http://www.blender.org/cms/Home.2.0.html)) can be used to produce photo-realistic images, commercial quality animation, and customized video games and Cinelerra ([heroinewarrior.com/cinelerra.php3](http://heroinewarrior.com/cinelerra.php3)) provides a powerful non-linear video editing capability. The LimSee2 application ([limsee2.gforge.inria.fr](http://limsee2.gforge.inria.fr)) is a tool for authoring interactive audiovisual presentations using the Synchronized Multimedia Integration Language (SMIL), providing an attractive alternative to traditional slide presentations.

Advances in the development of modeling tools, increasing processor power such as Beowulf clusters and GRID technology, the need to investigate human system response to complex high stress environments, the rising cost of experimentation, and the inherent restrictions in conducting human experimentation, have increased interest in computer simulation of complex biochemical, cellular, and physiological systems - in silico experimentation. Numerous open-source software packages for simulating cellular biochemistry and genetics are under active development, such as MCell ([www.mcell.cnl.salk.edu](http://www.mcell.cnl.salk.edu)) and E-Cell ([www.e-cell.org](http://www.e-cell.org)). These packages provide GUI interfaces for the design and execution of complex models of biochemical reactions, membrane transport, and genetic regulation that can be described by a mix of algebraic, ordinary differential, and partial differential equations. The development of the standardized XML based Systems Biology Markup Language (SBML) allows the exchange of models across environments. The specialized software environments, Neuron ([www.neuron.yale.edu/neuron/](http://www.neuron.yale.edu/neuron/)), Genesis ([www.genesis-sim.org/GENESIS/](http://www.genesis-sim.org/GENESIS/)), and PDP++ ([www.cnbc.cmu.edu/Resources/PDP++/PDP++.html](http://www.cnbc.cmu.edu/Resources/PDP++/PDP++.html)), provide GUIs and object-orientated scripting languages for the design and implementation of realistic models of neural and brain processes. One can also use an object-orientated, general purpose simulation language such as Modelica ([www.modelica.org](http://www.modelica.org)), to develop and integrate complex, multi-domain models involving hundreds-of-thousands of continuous and discrete components.

One of the primary driving forces behind the use of open-source software, especially for scientific research, is the large pool of contributors to the projects. Developers and users provide ideas and time in order to enhance, improve, and integrate the applications. There is strong evolutionary pressure at work as powerful, useful applications survive and grow, while interest and support wanes for poor or unwanted software. Another factor is the growing trend to require open-access to one's raw data when publishing in the open literature. One can now provide the software applications and all of the code used in processing the data, allowing reviewers and readers to duplicate the analysis and investigate alternative approaches.

In addition to the Web sites for the individual projects, more information on any of topics discussed can be obtained from another famous computer project: "Wikipedia, a multilingual, Web-based, free content, encyclopedia project" ([en.wikipedia.org/wiki/](http://en.wikipedia.org/wiki/)), though it is not technically an open-source project.

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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](mailto:barry.shender@navy.mil). Watch columns are available at [www.asma.org](http://www.asma.org) in the AsMA News link under Publications.

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Send information for publication on this page to: **Janet L. Sanner**  
320 Westminister Village Blvd.  
Sharpesburg, GA. 30277  
e-mail: [sanner@numail.org](mailto:sanner@numail.org)

## President's Message

I would like to express my appreciation for all of the support during the past year as the



Aerospace Nursing Society (ANS) President. It has been a great opportunity to share information and network with the Aerospace Medical Association members. I look forward to the continuation as being a member of the association.

I would like to invite all members to the Aerospace Nursing Luncheon in New Orleans during the Aerospace Medical Association 78th Scientific meeting. It will be held in the Sheraton Hotel beginning at Noon to 2:00p.m. Our guest speaker will be Frederick E. Tilton, M.D., M.P.H. Federal Air Surgeon, Office of Aerospace Medicine, Federal Aviation Administration.

A graduate of the U.S. Military Academy, Dr. Tilton entered the U.S. Air Force in 1962. His military career included operational time as a pilot and 11 years in the medical corps,

where he commanded a clinic, functioned as an F-15 physician/pilot technical consultant, and held key executive positions, including that of Chief of Flight Medicine in the Surgeon General's Office. After a career that spanned 26 years, he retired in 1988 with the rank of colonel.

Dr. Tilton received both an M.S. and M.D. degree from the University of New Mexico and an M.P.H. from the University of Texas. He is board-certified by the American Board of Preventive Medicine in Aerospace Medicine and Occupational Medicine. He is a Fellow in the Aerospace Medical Association and the American College of Preventive Medicine.

From 1988 to 1991, he was the Regional Medical Director at the Boeing Corporation's Wichita, KS, facility. In 1991, he was promoted to Corporate Medical Director and moved to Seattle, WA, where he directed Boeing's overall medical program until 1999. This organization was responsible for on-site occupational care of Boeing employees working in the

United States, and for management of the care provided to employees and their dependents assigned overseas. In 1998 his department received the American College of Occupational Medicine's prestigious Corporate Health Achievement award as one of the best industrial medicine programs in the country.

At this time, I would like you to welcome, Cathy Dibiasi, R.N. as the incoming ANS President. We look forward to her leadership in the coming year.

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

## The Civil Aviation Medicine Association Cordially invites you to the 4th Annual CAMA Sunday May 13, 2007, 8:00 a.m., in the Sheraton, Grand Chenier

Topic: Overweight and Obese Airmen: Implications of an international Epidemic

1. Dr William Mills- FAA - Epidemiology of Obese Airmen in the U.S.
2. Dr David Bryman- Senior International Aviation Medical Examiner- Health Consequences of the Obese Pilot.
3. Dr Tony Evans- ICAO - International Perspective of Overweight and Obese Airmen.
4. Dr Eric Donaldson - Australian CASA Regulation Regarding Obese Airmen.
5. Dr Jorg Siedenbueg -JAA- JAA Perspective on Obese and Overweight Pilots.
6. Dr Curtis Cook - Mayo Clinic- Pharmacologic Interventions for Obese Airmen.

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

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4042 Stonewall Lane  
Shiloh, IL 62221  
Work: (618) 206-8467  
Home: 618) 830-4581  
[diane.fletcher-02@scott.af.mil](mailto:diane.fletcher-02@scott.af.mil)  
[Fletcher4echarter.net](http://Fletcher4echarter.net)

PRESIDENT'S PAGE, from p. 537.

ments for position papers and other evidence-based instruments that were assigned 3 years ago during Dr. Antunano's term have languished without completion, and Council only meets two times per year. Recent attempts to use email editing through Council for approval of a position paper written by Dr. Rayman resulted in hundreds of emails without an approved final product. We can do better. On a positive note, the new DVD which includes all the AsMA journals through 2002 will be an important asset for those who need ready access to aerospace medicine information, and it will be available in New Orleans.

Finally, what a privilege it is to serve as an aerospace medicine practitioner and member of AsMA. Our specialty is so broad that good clinicians, scientists, nurses, physiologists, and technicians can contribute and participate in many ways. Personally, I am primarily a clinician and have been honored to help humans explore space. The relationship that a flight surgeon has with a flight crew is one of my most cher-

ished memories. It has also been a thrill to help average pilots with medical problems safely live their dream and fly the general aviation planes of their choice. While my military experience is limited, at UTMB it has been a joy to be able to introduce over a decade of residents from the Army, Navy, Air Force, and UTMB/NASA-JSC programs to this unique specialty. It remains my opinion that the most important attribute for a flight surgeon is to first be a good physician, and I have had the privilege to follow the early careers of many excellent aerospace medicine practitioners. Aerospace Medicine is a great field, and one can only imagine how exciting the future will be.

I have served in several AsMA leadership roles, and it is now time to turn the leadership over to others. Having worked with this executive committee for a number of years, it is clear we will be in good hands. I know that Jack Hastings has already laid out an aggressive agenda for his year as president, but he will make his own announcements.

Best wishes. RJ

## SPACE MEDICINE ASSOCIATION NEWS

### Commercial Human Spaceflight: The New Challenge for Aerospace Medicine

*Jonathan B. Clark, M.D., M.P.H.*  
*President, Space Medicine Association*

With the successful award of the Ansari X-Prize following the flight of Spaceship One in October 2004 to the fourth space tourist flight with Anousheh Ansari, it is clear that commercial spaceflight is really taking off. A number of commercial spaceflight companies are actively building and launching vehicles intended to carry humans into space. This effort includes many different countries, and launch sites for commercial human spaceflight are being considered throughout the world. Conferences such as the International Space Development Conference and the International Symposium for Personal Spaceflight are actively attended by the general public. Enthusiasm for flying in space is infecting all age groups. Due to the lessened concerns that commercial space flyers have for private medical data, and the fact that these space flyers may have major medical conditions, significant advances in our knowledge gaps may become available to the aerospace medicine community and the public at large. This will result in an ever-increasing awareness of the human health concerns in this high-risk endeavor. With much fanfare, Virgin Galactic has unveiled the prototype vehicle of Scaled Composites' Spaceship Two, and soon thereafter announced their goal of flying Steven Hawking, the severely disabled physicist, in microgravity parabolic flight and then possibly in space. This will place substantial challenges to the space medicine community.

The Commercial Space Launch Act of 1984 gave the Department of Transportation the authority to license and monitor the safety of commercial space launches and promote the industry. The Commercial Space Launch Amendments Act of 2004 (CSLAA) promoted the evolving commercial space industry and made the Department of Transportation and the Federal Aviation Administration (DOT/FAA) responsible for regulating commercial human spaceflight. The CSLAA required a graduated approach to regulation, with the standards governing human spaceflight evolving as the industry matures. The CSLAA prohibits the FAA from regulating crew and passenger safety before 2012, except in response to high-risk incidents, serious injuries, or fatalities. Because the commercial human spaceflight industry is in its early stages, the CSLAA is based on principles of informed consent and voluntary assumption of risk by spaceflight participants. Reusable launch vehicle (RLV) operators must inform the spaceflight participant of the risks associated with launch and reentry and the vehicle safety record. The spaceflight participant must provide written, informed consent as a way of showing that he/she understands and voluntarily accepts the risks associated with participating in space launch activities. The CSLAA requires a commercial space company to

launch or reenter crew only if they have received specified training and satisfied specified medical standards. In October 2006 the GAO issued a report (GAO 07-16), COMMERCIAL SPACE LAUNCHES: FAA Needs Continued Planning and Monitoring to Oversee the Safety of the Emerging Space Tourism Industry. The GAO found that the FAA provided a reasonable level of safety oversight for commercial launches, with none of the 179 FAA licensed commercial launches over 17 years resulting in fatalities, serious injuries, or significant property damage. In response to industry concerns about the costs of complying with regulations, the FAA has minimized compliance costs by basing regulations on common safety standards and by taking a case-by-case approach to licensing and waivers. The GAO also noted that the FAA will need more experienced personnel as new technologies to support commercial human spaceflight.

Although Space Medicine as a distinct entity dates to the late 1940's and early 1950's, and with about 80 person-years in space, much still needs to be learned. Training and ground checkout is risky, with 4 Russian fatalities (chamber fire, aircraft accident, and water survival) and 7 U.S. fatalities (aircraft accidents, capsule fire) occurring while preparing for space operations. Fatalities related to space operations include 3 Russian fatalities on reentry and landing, and 15 U.S. fatalities, with 7 on ascent (shuttle) and 8 on reentry (1 lost on X-15 that qualified for astronaut wings, and 7 on shuttle). Catastrophic loss of manned launch vehicles has occurred on the pad (Soyuz 18A) and on ascent (Soyuz T10A, STS 51L) with both Soyuz crews surviving. Reentry anomalies have occurred frequently, and are often due to vehicle configuration or faulty separation from modules. Crew cabin environment anomalies during descent have resulted in death and serious injury. Landing and post impact issues have also occurred, including hard impact injuries and inability of rescue forces to reach crew in a timely fashion. Spaceflight emergencies on orbit have included cabin pressure loss, fire, and toxic environment. Human factors errors in both space flyers and ground controllers have affected mission milestones and come close to catastrophe. Loss of vehicle control has occurred on ascent, on orbit, and during reentry on the X-15 flight 191, Gemini VIII, Apollo 10 Lunar Module, Apollo 13 Command and Service Module, STS 25 (51-L), STS 32, Mir following Progress M-34 Collision, STS 107, and Space Ship One (X Prize qualifying flight). Medical events have occurred in space and have affected mission objectives. In long-duration spaceflight, medical evacuation from space has occurred three times, and medical evacuation was in work on 3 other occasions when the medical condition stabilized or resolved.

The Aerospace Medical Association is ideally suited to provide the vast array of needs

to support the emerging commercial human spaceflight industry, including medical and health care delivery, physiologic training and monitoring, and indoctrination in life support, survival and egress. Hazard and risk awareness and informed consent will be a crucial component of these services. As we prepare for the annual Aerospace Medical Association meeting in May in New Orleans, there will be a panel discussing commercial spaceflight. Our guest speaker at the Space Medicine Association lunch on 17 May 2007 will be Space Frontier Foundation co-founder Rick Tumlinson. We hope that you all can attend this meeting for a lively discussion.

#### Attention Members!

Council Meetings are open to all members of the AsMA. Your input and attendance are always welcome. Our next meeting will be on Sunday, May 13, 2007, 9:00 a.m. in the Sheraton, Maurepas Room, New Orleans, LA.

The Annual Business Meeting will be Tuesday, May 15, 2007 at the Sheraton, Lagniappe Room. Your attendance is vital. Your vote is important. (Note: You don't have to buy lunch to attend the meeting!)

#### AsMA Future Meetings

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

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

May 3-7, 2009  
Westin Bonaventure Hotel  
Los Angeles, CA

#### NEW IMPROVED WEB FEATURE: POLICY COMPENDIUM

Some of you may be aware that you can already access AsMA position papers and resolutions online. But we've just made it easier for you! Previously, you had to scroll through an extensive PDF file that contained all papers since 1992. You can now view and print each paper from the table of contents. Just go to our Home Page ([www.asma.org](http://www.asma.org)) and click "About the AsMA". Then scroll down to "Downloadable Materials". Select "Policy Compendium" and you will have a table of contents from which you can choose the document you wish to view or print.

Send information for publication on this page to: **Maj. Andrew Woodrow, USAF, BSC**  
**Chief, Aerospace Physiology Formal Programs, Brooks City Base, TX 78235**  
**210-536-6441**  
**Andrew.Woodrow@brooks.af.mil**

# AEROSPACE PHYSIOLOGY REPORT

## HSI for Dummies

*Maj. Chuck Surman, USAF, BSC,  
Brooks City-Base, TX*

Human-related issues still account for 40-65% of the total ownership cost of a system; therefore, Human Systems Integration (HSI) is critical to optimizing the overall effectiveness of future and or current Air Force Weapon Systems, and is also critical in reducing life-cycle costs of future and current Air Force Weapon Systems.

The USAF is committing to a long term program called Human Systems Integration. It will be formally called AIRPRINT, to be aligned with the Navy SEAPRINT and ARMY MANPRINT Programs. It will fall under the Vice Chief of Staff of the Air Force (AF), have both an Airstaff and MAJCOM Offices and have key manning and support from the AF SG assets. That means Aerospace Physiologists, along with our residents in aerospace medicine (RAM), flight surgeon officers (FSO), and Pilot-Physician brothers will work together to target, track and improve the human performance issues common to all weapons systems.

In essence, the program seeks to properly select, equip, train, support, maintain, and enhance the warfighter and his weapons system throughout the lifecycle of the system. It also includes both safety assessments and human factors engineering the "man" in the system.

As Surgeon General (SG) assets, we are a critical link in supporting this Airstaff level program and have key areas of expertise we bring, and also responsibility to build new skill sets for ourselves. In addition to our core expertise in safety, training, and human factors (HF), HSI additionally covers the spectrum from survivability and manning to environmental concerns. These skills along with acquisition savvy and Science & Technology (S&T) background, we can be strong assets to the SG as we support this AF initiative. It also is in direct support of the AF Smart Operations (AFSO 21) and is the direction the new "Lean" Air Force is going.

To best understand the linkage between the operator and the HSI program it is helpful to understand the players and each teams responsibilities. The Air Force 'Players' are centered at the 311 Human Systems Wing (311 HSW/PE), Brooks City-Base, Performance Enhancement Directorate (PE); each element has a specific role in performance enhancement.

**Performance Enhancement Directorate (PE):** Ensure an overwhelmingly effective USAF warfighter through HSI and human performance, sustainment and enhancement (HPS/E) from concept to operational employment. Constantly pursue the application of leading-edge performance enhancement technology in order to maximize air and space power. USAF HSI and HPS/E lead agent to Department of Defense (DoD), Air Staff, MAJCOMs, system program offices, and acquisition, logistics, & test centers.

**Concept of Operations Division (PEC):** HSI interface for Joint, Air Staff, Army, Navy,

and DoD-acquisition systems. Establish policy with DoD and other services in human performance, manpower, personnel, training, human factors, environment, safety, occupational health, and personnel survivability. Facilitate HSI and human performance enhancement with Integrated Product Teams. Responsible for AF HSI career development, education, and training. Represent the 311th Human Systems Wing's human performance mission to industry.

**Performance Enhancement Research Division (PER):** Provide evidence-based solutions to urgent HPE and HSI operational issues. Explore and transition near term human systems technologies (hardware, software, mindware) to the field. Scientifically consult, facilitate or manage HPE technical projects.

**Warfighter Operations Division (PEX):** Central HSI /human performance interface between AFMC and the operational warfighter. Coordinate warfighter inputs concerning HSI limiting factors in weapons system development. Collaborate with DoD Office of Transformation, Joint Forces Command, and NATO for operational HSI needs. Assure USAF/SG human performance requirements are addressed in newly developing weapons systems. Participate on HSI teams across the AFMC enterprise areas of aeronautical systems, C2ISR, air armament, and space. Utilize HSI/human performance resources of RAM, pilot-physicians, aerospace physiologists, safety, and life support officers serving with line units to solve HSI problems.

## Human Systems Integration (HSI)

HSI is a comprehensive strategy used early in the acquisition process to optimize total system performance, minimize total ownership costs, and ensure that the system is built to accommodate the characteristics of the user population that will operate, maintain, and support the system.

The HSI office role is to help program managers and Warfighters implement HSI in all phases of systems acquisition through Integrated Product Team participation and/or consultation for requirements development, pre and post contract support, HSI assessments policy guidance, training development and delivery, and information collaboration.

In evaluating a system, the HSI process explicitly fuses the following domains and asks the following questions as part of its evaluation:

- **Manpower:** Military, civilian and contractor resources available to operate and support a system...*What are the force structure impacts? (e.g., Selection and Training pipeline for new UAS operators- what is strongest background- ABMs, NAV's, Pilots, Intel?)*

- **Personnel:** Human performance characteristics of the user population...*Are the required skills to operate/maintain the system identified? (e.g., Unique skill set selection and Knowledge Skills and Aptitude (KSA's) for new CAOC and UAS systems)*

- **Training:** Optimize the operational readiness of the Total Forces...*Can personnel oper-*

*ate/maintain the system? ( e.g., Core academics and aerospace skills to develop in CAOC and UAS operators)*

- **Human Factors Engineering:** Develop effective human-machine interfaces...*Can situational awareness be maintained while accomplishing tasks? (e.g., Optimal console design, software interface and HUD design for new MQ-9 Predator and CAOC workstations)*

- **Environment:** Identifying/preventing illness and injury due to exposure to hazardous chemical, physical, and biologic agents encountered in the air, water, or soil...*Are hazardous materials contained in the system (e.g., Impact of mobile vice fixed workstations for both CAOC and UAS deployed systems.)*

- **Safety:** Prevention of any real or potential condition that can cause mission degradation; injury or death to personnel; or damage to, or loss of, systems, equipment, facilities, or property...*Are controls in place to mitigate potential unsafe conditions?( ex: Ground Control Station and CAOC optimal designs for safe ops?)*

- **Health:** Provide a fit, healthy force and prevent health threats from affecting military forces...*Do existing or potential conditions exist that can cause death, injury, illness, etc?( ex: Lifestyle issues for Predator pilots with 6 day/week sustained ops for CENTAF over last 1500 days)*

- **Personnel Survivability:** Protection against fratricide, detection, and instantaneous, cumulative, and residual nuclear, biological, and chemical effects; crew compartment integrity; and provisions for rapid egress...*Can personnel avoid or withstand hostile environments? ( ex: Reduced fatigue and stress for round-the-clock netcentric, time critical targeting operations in both CAOC and Predator Operations center)*

- **Habitability:** Physical environment (e.g., adequate space and temperature control), personnel services (e.g., medical and mess) and living conditions (e.g., berthing and personal hygiene)...*Is the system suitable for long durations?(ex: Good place to work?)*

The 311 HSW/PE, AFRL/HE, USAFSAM, and AFIOH will be rolled into IAM and do both the HSI mission, along with S&T, Acquisition, Medical Training, and Environmental assessment, with the ultimate goal of building a true center for human performance enhancement for the AF and DoD.

## JOIN AsPS TODAY!

*Take advantage of the outstanding network potential and the chance to gain knowledge from the field's top minds.*

*Membership is only \$10. For more information, please contact Joe Essex at joseph.essex@navy.mil, or write to:*

*LCDR Joe Essex, MSC, USN  
BLDG 2272 Suite 345  
47123 Buse Rd  
Patuxent River, MD 20670*

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

By Conoly Barker

### Aloha Wing Sisters!

Here in Hawaii they say "Mahalo nui loa" for "thank you very much." As my year as your President draws to a close, I have several mahalo's to make. A big Mahalo Nui Loa to my Board members. They have always been there when I needed advice and support. Another big Mahalo Nui Loa to Arrangements Chair, Diane Okonski-Hudson, and her team for making this year's meeting a memorable one! And another Mahalo Nui Loa to all of you for making the Wing the special group that it is. It is your friendship and warmth-welcoming to all whether newcomers and old-timers-and your sense of adventure and exploration in each city we visit that make the Wing a group like no other.

I hope to see you all in New Orleans, having fun shopping in the French Market, lingering over beignets and coffee, cooking up a storm, and visiting the gracious old plantations and the interesting old city that is New Orleans!

Til then, Aloha! Conoly

## Join the Wing - Share Your Talents

Many years ago, when I was first dating my husband, Bob, he took me to a lecture by one of his professors, the renowned, Dr. Wilder Penfield. Dr. Penfield's topic that evening was "Careers," and he explained the importance of always moving forward in one's life. He told us that he had had three different careers in his lifetime. He had started as a football star at Princeton University, playing against other Ivy League teams and gaining national attention. He might have made a career in professional sport, but chose medicine instead - for which the world is profoundly grateful. Dr. Penfield went on to establish the Montreal Neurological Institute and pioneered many advances in neurosurgery and in the treatment of epilepsy. At the end of his medical career, he chose a completely new career path and became an author of fiction and had several books published. His message to his young audience that night was that we must never rest on our laurels and constantly seek to keep our lives vibrant and interesting.

Many of our own Wing members have learned that lesson as well. We can count among our membership, doctors, nurses, teachers, writers, MBA's, and even a lawyer or two. But our members have not stopped there. Several have established second careers which were completely different from their primary training.

Among them are Olga Finklestein who traded in her biochemistry lab to work in the Argentinean Embassy in Montreal; Harriet Hodgson who began her professional career teaching young children then went on to become a successful health and wellness writer with numerous books published; Marilyn

Brath who started out as an airline flight attendant and now has a very busy law practice; Alison Gibson who trained in the field of geography but ended up working in a large banking institution, and lastly, Mitzi Hansrote who retired from nursing and took up flying lawyers around Florida. As you can tell, our members are multitalented and dedicated to continuing learning, and they bring a wealth of experience and expertise to the Wing. It is this which keeps our organization strong, vital, and moving forward to meet new challenges. We extend an invitation to all of you who are not yet members to join us at our upcoming meeting in New Orleans. Come and share your talents - you will be rewarded with many new life-long friendships.

## Meet Ella Sugo

I was born in Montevideo, Uruguay, where I had what I remember to be a great childhood surrounded by lots of extended family. When I was 11, and in the setting of socio-political unrest in many countries in South America, my family immigrated to Australia. After what can only be described as a crash course in English, we settled into the northern beaches area of Sydney-a lovely area with lots of sun, sand and surf. I was somewhat unsure of what career to pursue initially, but eventually decided to do medicine. It was as a medical student that I met my husband, Jeff Stephenson.

Our early married life was spent in tropical Townsville, North Queensland, where our two children, Carlos (now 17) and Isabella (now 16), were born. We have many fond memories of Townsville but we returned to Sydney to be closer to both our families. I had many part-time jobs while my children were little - mainly teaching Anatomy (an old love of mine) and working in Women's Health. It was when Isabella entered school that I decided to specialize and chose Anatomical Pathology.

During my pathology training I was exposed to a lot of Forensic Pathology and slanted my final exam so as to sub-specialize in Forensic Pathology. I worked as a Forensic Pathologist for 3 years, including my senior registrar term. I found this work very interesting but it took a heavy toll on my family, as it had a lot of after-hours commitments. In view of this, I decided to change to Pediatric Pathology. I currently work at the Sydney Children's Hospital, do locum work at Sydney's other children's hospital and will shortly do some locum Forensic Pathology (to keep my hand in).

My greatest accomplishment and joy are my children. Both of them are keen swimmers (I enjoy swimming very much myself) and I have watched them swim for hours when they train. My husband and I love gardens and currently live on a 5-acre property on the outskirts of Sydney. Unfortunately, there is not much time at the present for relaxation or hobbies, but I would not change what I have or do - except maybe a bit less work.

Last year was the first year that my husband attended an AsMA meeting, and he has

thoroughly enjoyed the experience and we look forward to many more.

## CONDOLENCES

The Wing sends its deepest sympathies to John and Harriet Hodgson on the loss of their daughter, Helen, who died February 23rd of injuries sustained in an automobile accident. Harriet noted that one of the highlights of Helen's life was a family trip to their homestead on the Isle of Man several years ago. The Isle of Man's symbol is three legs, an ancient Greek symbol, which means "which ever way you throw it, it will stand". In other words, Manx people will stand up to the tragedies of life. Harriet's final words at her daughter's services were "This family loves you, this family will care for you, this family will stand." The Wing family echoes those words as we keep Harriet, John, and Helen's 15 year old twins, Haley and John in our thoughts.



## Join the Wing!

The Wing of the Aerospace Medical Association was formed in 1952 "to support the specialty of aviation, aerospace, and environmental medicine by facilitating cooperation among its practitioners and by increasing public understanding and appreciation of its importance." Dues are \$20 per year. For more information, contact: Judy Waring, 4127 Kenyon St., Seattle, WA 98136; (206) 933-0884; e-mail: judywar-ing@comcast.net

## Habitat for Humanity Project

The Aerospace Medical Association is partnering with the New Orleans Area Habitat for Humanity during the 2007 annual meeting. Conference attendees and AsMA members interested in contributing back to our host community are invited to volunteer with Habitat for Humanity on Saturday, May 12, from 7:15 am to 2:30 pm.

Conference attendees, spouses, family, and friends are all invited, but must be 16 years of age to participate. We will be assisting in the construction of new houses, so volunteers can expect to engage in light manual labor. All equipment and training will be provided, but volunteers should bring necessary personal items, such as light work clothes (long sleeves and pants), eye protection, work shoes/boots, and work gloves.

We are currently planning to meet in the lobby of the Sheraton at 6:00 am on Saturday, May 12th, for a group departure to the work site.

If you are interested in participating, check out the website at [www.asmavolunteers.org](http://www.asmavolunteers.org).

# 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**

## Dr. Crance Awarded Two Prestigious Military Honors

AsMA Fellow Prof. Dr. Jean-Pierre Crance has been awarded two of France's most prestigious military honors. In a formal ceremony held at the Air Basis 116 at Luxeuil, Dr. Crance was presented the Chevalier of the Legion of Honour by General Bruno Gougeon, Commander of the Air Region North. This Ministry of Defense decoration was presented in recognition of



Dr. Crance's more than 40 years with the French Military Defense Health Service. Further, it is for his more than four decades of tireless work as Professor of Physiology at the Medical faculty in Nancy that the Minister Secretary of National Education wanted to recognize his work with a rare distinction. Dr. Crance was, therefore, also awarded with the rank of "Commandeur dans l'Ordre des Palmes academiques."

Subsequent to serving on active duty with the French Navy, Dr. Crance continued as a Physician with the Reserve Forces. His many outstanding contributions resulted in his ultimately being promoted to the rank of General, Chief Consultant of the French Military Medical Services. For several years Dr. Crance has been the Reserve Counsel to the Director of the Health Service of the Armed Forces and continues to supervise French Armed Forces medical training.

Dr. Crance is an avid powered aircraft and sailplane pilot, and has been the doctor of the French sailplane team during the World Championship. Dr. Crance has presided over the Medical Council of Civil Aeronautics since 1986. He is a Past-President of the French Aeromedical Society SOFRAMAS, Fellow of the Aerospace Medical Association, Academician of the International Academy of Aviation and Space Medicine, and member of the Academy Nationale de l'air et de l'Espace. Dr. Crance has also been the recipient of numerous other prestigious distinctions including Chevalier dans l'Ordre National du Merite, the Médaille de l'Aéronautique, Médaille d'Honneur of the Health Department of the French Armed Forces, and the Médaille des Services militaires volontaires.

## New Members

Choy, Nari, M.D., Ulsan, Korea  
 D'Amore, Michael, B.S., Bethesda, M.D.  
 Giannini, Anthony, Ph.D., D.A., M.A., Ed.M., Naples, FL  
 Kuhne, Michael, LT, MC, USN, Plainview, NY  
 McBeth, Paul B., B.Sc., M.A.Sc., Calgary, Alberta, Canada  
 McGurty, John A., CAPT, MC, USN, FS, Peekskill, NY

Miles, John E., Capt., USAF, MC, St. Louis, MO  
 Naftanaila-Mali, Florica, M.D., Bucharest, Romania  
 Reinbold, Kirk, Ph.D., Chester Springs, PA  
 Samdal, Hans O., MAJ, NAF, MC, FS, Rygge Flystasjon, Norway  
 Sundstrom, Ellen M., Dallas, TX  
 Swales, William, Capt., CAF, MC, Peterborough, Ontario, Canada  
 Thomasma, Christa M., LT, MC, USN, Cantontment, FL  
 Todd, Rodger J., M.D., Port Hedland, Australia  
 Yassin, Mohammed, M.D., Abu Dhabi, United Arab Emirates  
 Young, Jeffrey, B.S., Houston, TX

## In Memoriam

### Henning E. von Gierke, Dr. Eng.

Dr. Henning E. von Gierke, who was a clinical professor at the Wright State University School of Medicine, and was the recipient of the 2004 John Paul Stapp Award, died recently at the age of 89.



He was a native of Karlsruhe, Germany. In the late 1930s, he began studies of electronics, communication engineering, and acoustics at the Technical Universities in Karlsruhe and Munich. He received the Diplom Ingenieur in 1943 and a

Doctor of Engineering degree in 1944 from the Technical University in Karlsruhe. After doing research in acoustics, aero-acoustics, and teaching, he came to the United States in 1947 as part of a program called "Operation Paperclip," which was designed to enhance American aviation science and technology research programs after World War II, to join the Aerospace Medical Research Laboratory at Wright Patterson AFB, OH. He worked there for over five decades with an increasing number of co-workers and research responsibilities until his retirement as Director of the Biodynamics and Bioengineering Division. He directed and was actively involved in research in vibration, impact, acceleration, shock, blast noise, communication, and vestibular performance. His work focused on the interaction of all types of mechanical energy with the human organism (the transmission, action, human physiological response, and perception) and was published in over 160 scientific publications. He also pioneered work on ameliorating unwanted flight control inputs during flight that are referred to as biomechanical feed-through, or pilot-induced oscillations, and developed a series of lectures on "The Effects of Shock and Vibration on Man."

When the USAF was developing supersonic aircraft such as the F-108, XB-70, and B-58 bombers that were to be equipped with ejection seats that encapsulated the pilot prior to ejection, Dr. von Gierke provided sound,

physics-based insights and guided the engineers with a more theoretically based set of acceleration limit criteria for emergency escape systems. These criteria allowed NASA to explore Project Mercury landing impact conditions with more confidence.

Dr. von Gierke served on committees of the Executive Office of the President of the United States and on many NASA, Department of Transportation, FAA, EPA, and NIH Advisory committees. He was dedicated to seeing the scientific research results applied to practical societal needs in a correct and timely manner. He worked with patience and energy over three decades leading the development of national and international standards (ANSI, ISO) addressing human safety and well-being with respect to noise, vibration, shock and impact, noise-induced hearing loss, and hearing conservation.

He was elected a member of the National Academy of Engineering, the International Academy of Aviation and Space Medicine, the International Academy of Astronautics, an Honorary Fellow of the Institute of Environmental Sciences, and an Honorary Member of the Military Audiology Association. He was a Fellow and Past President of the Acoustical Society of America and a Fellow and past Vice President of the AsMA.

Among the awards he received are: the DoD Distinguished Civilian Service Award; the Eric Liljencrantz, Arnold D. Tuttle, and John Paul Stapp Awards from the Aerospace Medical Association; the Commander's Cross of the Order of Merit from the Federal Republic of Germany; the H.R. Lissner Award from the American Society of Mechanical Engineers; the Rayleigh Medal from the UK Institute of Acoustics; the Award for Outstanding Contributions from the National Hearing Conservation Association; and the Distinguished Executive Presidential Rank Award, presented by the President of the United States.

## CLASSIFIED ADS

### POSITION WANTED

**WANTED: Full-time salaried Aerospace Medicine position.** Board Certified Aerospace Medicine (UTMB/NASA), Board Eligible Psychiatry, prior service US Army Reserve, highly motivated candidate, experienced Medical Director, FAA AME, Research Experience, CV and references available, contact Bradford Ashley M.D., M.S., M.P.H., at flightmed@comcast.net or call 971-344-3769.

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# Thank You!

## 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 international goals and objectives. Its 78-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	Japan Airlines
Air Canada	Kelsey-Seybold Clinic
Aircraft Owners and Pilots Association	Korean Air Force Safety Center (AFSC)
Air Line Pilots Association	Lifepoint, Inc.
AirSep Corporation	Lockheed Martin Corporation
American Airlines	Martin-Baker Aircraft Company Ltd.
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Comprehensive Health Services, Inc.	Sanofi-Aventis Pharmaceuticals
David Clark Company, Inc.	South African Airways
Education Enterprises, Inc.	South African Civil Aviation Authority
Environmental Tectonics Corporation	SpecPro, Inc.
Essilor of America/Varilux	Stereo Optical Company, Inc.
Federal Express	United Airlines
Gentex Corporation	United States Aviation Underwriters
International Federation of Air Line Pilots Associations	Universities Space Research Association (USRA)
International SOS Assistance, Inc.	Harvey W. Watt & Company
	Wyle Laboratories, Inc.