

President's Page

AsMA has an outstanding leadership team, and I think it is appropriate that readers get a chance to hear other voices on the president's page. Without obligating future presidents, I have offered each of the current vice-presidents an opportunity to update AsMA membership on the many ongoing activities under their leadership. The following article is the third in this series.

Representation and Advocacy

Carol Manning, Ph.D.

This month I will be talking about the committee activities that fall under the category of Representation and Advocacy. In general, the goal of these committees is the same: to communicate information between AsMA members and each other, and between AsMA members and the public. However, the committees accomplish this goal of communication in different ways--some address issues directly related to the Association, while others address issues of interest to the general public. I hope that learning about the activities of these committees will encourage AsMA members to participate on them in the future. Committee membership allows members to contribute their knowledge and experience to the dissemination of scientific information and the development of AsMA public policy.

There are three standing committees that fall under the Vice President for Representation and Advocacy: Air Transport Medicine (ATM), Communications, and Resolutions. In general, the purpose of the standing committees is to meet (either in person or electronically) to conduct business related to their specific tasks, then report back to Council and the Executive Committee with the results of their work. Some committees may also develop panels for presentation at the AsMA's Annual Scientific Meeting.

The ATM committee consists of a group of AsMA members who have similar yet diverse experience and perspectives in the area of biomedicine and air transport medicine. The committee, which focuses on topics specifically related to Air Transport Medicine, reviews relevant research and prepares position statements for the Aerospace Medical Association. This year, the ATM committee has been asked to prepare policy statements related to five relevant topics: 1) the use of Go/No Go pills by Air National Guard/Reservists who fly commercially; 2) biohazard decontamination; 3) the appropriate interval for pilot medical examinations; 4) medical examinations for flight attendants; and 5) procedures for how the air transport community should deal with emerging infections such as SARS or bird flu. The 2006-07 ATM Committee, led by Alex Wolbrink, has completed a letter opposing a proposal to adopt Cabin Crew (Flight Attendant) Medical Certification standards that require periodic medical examinations. They also prepared a position letter recommending ways to contain and control disease outbreaks on aircraft. The committee is preparing position statements on the use of Go/No Go pills by military reserve pilots who later fly commercial aircraft and on the periodicity of pilot medical exams. When the committee finishes preparing a position paper or letter, it is then submitted to the AsMA Executive Committee for review and approval. Upon approval, the position document is forwarded to appropriate recipients as an expression of AsMA's official position on the topic.

The Communications Committee is a fairly recent addition to the AsMA standing committees. David Sarnow is the chair of the Communications Committee in 2006-2007. The Communi-



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

cations Committee's responsibilities include overseeing the development of brochures, books, and electronic media (including the web site but not the Journal.) Recently, this committee developed a prototype branded letterhead for the Association to extend the journal's new cover to AsMA correspondence. They are considering the creation of a promotional video for AsMA that might be filmed, in part, at the 2007 Annual Scientific Meeting in May. The Communications Committee is very small and could use some more members.

Resolutions are statements about AsMA members' positions about matters of public policy related to Aerospace Medicine. The Resolutions Committee, led by Richard Scheuring, is responsible for considering and coordinating resolutions submitted by AsMA members for review and adoption by the organization before it progresses to the next level of review. Members of the Resolutions Committee provide their collective expertise to identify potential misunderstandings or point out the need for additional evidence. They then suggest potential changes to the person or committee that submitted the resolution so it can be modified before being reviewed by the Executive Committee, Council, and approved by the AsMA Membership.

One issue being considered is how to streamline the process of developing and approving resolutions. At present, most resolutions are reviewed by the Resolutions Committee, then reviewed and approved by the Executive Committee and Council. However, final approval from the Membership is required (through a vote conducted at the Annual Business meeting) before a resolution can be adopted. Thus, at present, resolutions can only be adopted once a year. That policy limits AsMA's ability to respond quickly to aerospace medical issues that may arise during the course of a year (although official letters and position papers may be prepared intermittently).

It is clear that members of all three of these committees perform valuable services for the Association. I especially want to thank the chairs for their hard work in organizing meetings and information flow between members. The combination of their diversity and experience allows them to inform AsMA's governing body about advances in research or policies that should be considered when developing AsMA's public positions. They help develop the face that AsMA shows the rest of the world. AsMA would like to invite members, new and old, to join some of these committees so they can contribute their knowledge and experience to improving the organization and its ability to communicate with the outside world.

Executive Director's Column



Rayman

For Whom the Bell Tolls

"Never send to know for whom the bell tolls; it tolls for thee."—John Donne

Occasionally I receive complaints both from members and prospective members that our Journal does not publish enough clinical medicine, air medical transport (air evacuation), hyperbaric, and human factors articles. I am sure that most of us who have been members for many years would agree that this is a valid observation. On the other hand, there has always been a plethora of research articles thanks to our scientists who are doing the bench work.

But why are we deficient in these other areas? Partial explanations might be due to rationalization: there are others in our field with a broader, deeper experience as well as outstanding writing proficiency; hence, let them do the publishing. Other reasons might be attributed to heavy work schedules, lack of free time to engage in academic pursuits, and possibly even a little bit of laziness.

One must keep in mind that Aerospace Medicine is a very small discipline. Most other specialties outnumber us by a wide margin, enjoying many experts willing and able to provide a rich and steady stream of academia for the rank and file. *JAMA*, *British Medical Journal*, *American Family Physician*, and countless others are examples. But in our small specialty, we cannot rely on just a few individuals to carry this burden alone. All of us in some way are experts in some area of Aerospace Medicine. I would beseech you to share this with your colleagues.

Certainly, if we could increase the number of publications in these deficient areas, it would better balance our Journal and would be far more appealing to a broader readership. I sincerely hope all of you give this some thought and try to find those few extra hours to submit articles to the Journal. It will not only benefit those of us in Aerospace Medicine, that is your colleagues, but I think that you, the writer, would learn something in the process of authorship. Personally, I have found writing somewhat similar to playing basketball. The more you do it, the easier it becomes, the words flow more freely, and you become more proficient. So I beseech all of you to take up the mighty pen and show us your science. As I said at the onset, the bell tolls for thee.

MIT Student Group Offers Sponsorship in Space

MIT's student-led Mars Gravity Biosatellite Program has publicly launched a unique effort to pay its way into space through its new website, YourNameIntoSpace.org. The group is offering to put logos, photos, messages, and other images on its new Earth-orbiting research spacecraft, which will be launched into orbit in 2010. The website allows organizations and individuals to make tax-deductible donations to the project. In return, donors can post images on the satellite.

There will be at least 100,000 square centimeters of open area on the spacecraft to place images on. The entry price is \$35 for one square centimeter of space. While in orbit, content on the outside of the spacecraft will be photographed with views of the Earth and space. Donors who choose a location on the outside of the spacecraft can receive photographs of their logo from space, while donors who choose a location inside the return vehicle will receive the piece of spacecraft hardware bearing their logo or other message after the mission.

The students need funds to design, implement, launch, and operate the mission. Their initial goal is to raise \$500,000 to reach their next major design review in 2007. The goal of the program is to study how Martian gravity—about one-third that of Earth—will affect the mammalian body, helping to pave the way for future manned missions to Mars. The program, which is a collaboration with Georgia Tech, is the largest American student-led spacecraft design program with over 450 student participants from universities around the world.

To learn more, please visit: www.yournameintospace.org

University of Maryland May Lead Deep Impact to Another Comet

A University of Maryland proposal to send the Deep Impact spacecraft on an extended mission to get a close-up look at Comet Boethin, which is now inbound to the sun from its most distant point that is nearly out to the orbit of Saturn, has cleared the biggest step in a two-step NASA approval process. On October 30, the space agency announced that two proposals to use the Deep Impact's flyby space for new missions were among the three "missions of opportunity" proposals chosen to provide detailed concept studies that NASA will use in the final selection process.

The proposed Deep Impact follow-on missions are called DIXI and EPOCh. The Maryland-led Deep Impact extended Investigation (DIXI) seeks to use the surviving Deep Impact spacecraft and its three working instruments (two color cameras and an IR spectrometer) for an extended flyby of Comet Boethin. The Extrasolar Planet Observations and Characterization (EPOCh) mission would

use the high resolution camera on the Deep Impact flyby craft to search for Earth-sized planets around other stars.

The University of Maryland-led team that produced the spectacular Deep Impact mission, which smashed an impactor into Comet Tempel 1 in July 2005, hopes new information gathered from Comet Boethin will help coalesce the vast array of new cometary information into solid ideas about the nature of comets, how they formed and evolved and if they have played a role in the emergence of life on Earth. Like Deep Impact, DIXI will be a partnership between the University of Maryland, NASA's Jet Propulsion Laboratory (JPL), and Ball Aerospace & Technologies Corporation. The data obtained from DIXI will also will help scientists determine which characteristics of comet structure and composition are primordial, reflecting conditions and processes that existed 4.5 billion years ago when the solar system formed, and which are the result of evolutionary forces (heating and cooling, impacts, etc.) that have acted on comets since that time.

Deep Impact was the first large scale experiment ever conducted on a comet. The Deep Impact flyby spacecraft made many surprising discoveries on approach to Comet Tempel 1. These include an extremely fluffy composition that largely insulates the interior from heat experienced by the surface; frequent, natural outbursts; major differences in the distribution of carbon dioxide and water; craters and other surprising geological features; demonstration that the ice below the surface must be evaporating (subliming) to water vapor, and the first detection of ice (a very small amount) on a cometary nucleus.

Articles of Aeromedical Interest

Here is the latest listing of journal articles published in other journals that may be of interest:

1. Chen LH, Wilson ME, Schlagenhauf P. Prevention of malaria in long-term travelers. *JAMA* 2006; 296:2234-44.
2. Newman DG. An analysis of in-flight passenger injuries and medical conditions, 1 January 1975 to 31 March 2006. Canberra City, Australia: Australian Transport Safety Bureau; Oct 2006. Aviation Research and Analysis Report-B2006/0171.
3. MacDonald RD, O'Donnell C, Breek K, et al. Interfacility transport of patients with decompression illness: literature review and consensus statement. *Prehosp Emerg Care* 2006; 10:482-7.
4. Vogt TM, Guerra MA, Flagg EW, et al. Risk of severe acute respiratory syndrome-associated coronavirus transmission aboard commercial aircraft. *J Travel Med* 2006; 13:268-73.

This Month in Aerospace Medicine History-- January 2007

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

Seventy-five Years Ago

The current status of aviation from airsickness to pilot task overload (London, England). "An investigation promoted by the Daniel Guggenheim Fund for the Promotion of Aeronautics was concluded by the observation that few people are troubled by airsickness in properly built and efficiently piloted aircraft..."

"According to Flack the connexion [sic] between sea and air-sickness appeared to be slight, though in cases where the labyrinth was unduly sensitive the subject would be both sea-sick and air-sick.

"Much general experience goes to show that all subjects react very differently, as to the various factors which set up the impulse, and that different senses and functions are involved in different people..."

"The health services of the future also promise a use of aviation for therapeutics, metabolism is stimulated by flying – its tonic effect is marked; airmen have also noticed that the common cold reacts favourably to flights at high altitudes.

"The employing company cannot always appreciate that small and apparently trivial difficulties are vital in their reactions. The maker of the machines, in his engineering enthusiasm, unconsciously adds to the pilot's troubles by altering or adding controls, changing what has been an automatic reaction to an extraconscious action – a possible source of error in rapid judgment. The necessity for standard controls cannot be too strongly urged; and every effort should be made to lessen the number of instruments the pilot must watch – air speed indicator, altimeter, oil and petrol gauges, compass, etc. – and these tend to increase. So, too, everything that will minimise the result of an accident to him, such as the special padding of the cockpit, the automatic parachute, tends to give him a certain relaxation of the tenseness of expectancy" (3).

Space and lighting constraints of ophthalmologic testing (Director, Department of Ophthalmology, The School of Aviation Medicine, U.S. Army). "One difficulty that is frequently experienced by the Flight Surgeon, and in particular the Department of Commerce Examiner, is the lack of available space to install the standard depth perception apparatus. It is very rare indeed to find a practitioner who is fortunate enough to have a twenty foot clear distance in an examining room, and very few modern office buildings are so constructed that a twenty foot examining room may be had. Besides, floor space rental amounts to dollars and cents. As a result of such restricted quarters all kinds of makeshifts are made use of, many of which are quite unsatisfactory from every point of view. Frequently, a door is opened into an adjoining office or waiting room, or a dark hallway utilized, with many and weird lighting effects, handicapping the examinee and making the whole examination an irksome and tedious process.

"I believe that the majority of ophthalmologists use the ophthalmic mirror at ten feet, with reversed Snellen types, as a matter of

routine testing visual acuity in office examinations. This is apparently a recognized and established procedure, and no attempt will be made here to discuss its advantages and disadvantages. It is my belief, based upon a series of personal observations, that the ophthalmic mirror can be used with the depth perception apparatus, and also in the examination for heterophoria, and duction tests, effectively, and that this method has certain advantages, particularly for the practitioner who has a limited amount of office space" (5).

Fifty Years Ago

Paying heed to passenger care and comfort. "There are numerous problems...related to passenger care and comfort. What provision should be made for the transportation of baby passengers? What recommendations should be made relative to safe-guarding the health of passengers, for example, the prophylactic use of certain drugs for the prevention of malaria? What drug would be recommended as an antionion-sickness remedy? What should be done about the proper handling of food and the maintenance of potable water aboard aircraft? The latter problem is a major one but is not insurmountable. It requires carefully outlined procedures and close scrutiny on the part of the station operations managers in various parts of the world. What answers should be given to inquiries relative to health conditions throughout the world? One should keep as well informed as possible on worldwide health conditions and be able to get accurate information with the least possible delay. What about the transportation of patients? In general, almost any type of sick patient can be flown if he can be transported, provided that he does not cause discomfort to other passengers and provided there is no hazard to himself or others. Transportation of patients is less of a problem currently because of the use of pressurized aircraft" (4).

First nonstop jet aircraft flight around the world. Three Boeing B-52 Stratofortress bombers, led by Maj. Gen. Archie J. Old, Jr., of the U.S. Air Force, flew around the world in forty-five hours, nineteen minutes, concluding their flight on January 18, 1956. The three bombers made the 24,325 mile flight at an average speed of 525 mph, powered by eight Pratt & Whitney J57 (JT3) turbojet engines; these engines were the first aircraft engines capable of thrust in excess of 10,000 pounds (7).

Twenty-five Years Ago

Using video games as performance evaluation tests (Canyon Research Group, Orlando, Florida; Naval Biodynamics Laboratory, New Orleans, Louisiana; Pennsylvania State University College of Medicine, Hershey, Pennsylvania). "Work at the Naval Biodynamics Laboratory aims at developing a battery of performance evaluation tests for environmental research (PETER). Because repeated-measures designs are virtually universal in environmental studies, the paradigm focuses on stabilization with practice; thus far, over 50 tasks have been studied. The present report describes how five computerized video games fare as performance tests. The tasks were performed for 3 weeks each, in the same order, by the same subjects. The results show that four of the five games meet all criteria satisfactorily and one does not, a favor-

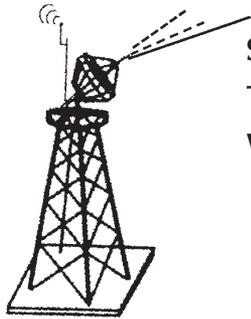
able showing for the video games in comparison with conventional tests of either the paper-and-pencil or apparatus types. In terms of availability, equipment reliability, expense, and other practical considerations, the video games have many advantages. It is concluded that video games have considerable promise for performance testing and other applied contexts" (1)

Attempting to screen for accident-prone aviators (Faculty of Administration, University of Ottawa, and National Defence Headquarters, Ottawa, Ontario, Canada). "This study is the first in a series of steps aimed at developing a management tool that will provide a technique for screening accident-prone aviators. Because 'life change' is found to be a contributing factor to stress and development of illness in both civilian and military populations, the study of life change events in aviators is a reasonable point from which to begin. The Holmes and Rahe Recent Life Change Questionnaire was administered to an experimental group of 158 aviators and two control groups: one group of 127 ground crew who were matched for age and location, and a group of 46 who were matched for rank. Significant differences were found between some of the subgroups but there were no significant differences between the experimental group and either of the control groups. Nonetheless, this aviator population is functioning at a level of life change-induced stress which would normally predict health changes in 50% of the general population. Therefore, it is concluded, the effect of excessive life change as a contributing factor to personal stress and illness or accident merits further study" (2)

Incidence of alcohol abuse and liver pathology in aircraft mishap casualties (Civilian Medical Specialist/Aviation Pathology Royal Air Force Institute of Pathology & Tropical Medicine, Halton, Aylesbury, Buckinghamshire, United Kingdom). "The aim of this review is to determine the incidence and aetiology of fatty liver and other liver pathology in aircrew. A review of 525 fatal aircraft accidents resulted in deaths of 776 aircrew. Histology of liver, available in 423 aircrew, was reviewed and 118 found abnormal. There were 66 cases (15.6%) of fatty livers. In 11 of the fatty livers and 8 of the 52 non-fatty livers there was histopathologic evidence compatible with alcohol abuse (4.5%). The histopathologic appearances are discussed" (6)

References

1. Kennedy RS, Bittner AC Jr, Harbeson M, Jones MB. Television computer games: A 'new look' in performance testing. *Aviat Space Environ Med*, 1982; 53(1):49-53.
2. McCarron PM, Haakonson NH. Recent life change measurement in Canadian Forces pilots. *Aviat Space Environ Med*, 1982; 53(1):6-13.
3. Rawlinson EG. Preventive medicine in its relation to aviation. *The Lancet*, January 9, 1932; 222(5654).
4. Schreuder OB, Constantino JG. Medical problems in international airline operation. *New York State J of Med*, 1957 (Jan 15).
5. Simpson RK. A plea for the ophthalmic mirror with the depth perception apparatus. *J Aviation Med*, 1932; 3(1):6-8.
6. Underwood Ground KE. Liver pathology in aircrew. *Aviat Space Environ Med*, 1982; 53(1):14-18.
7. www.infoplease.com/ipa/A0004537.html.



Science & Technology Watch

Keeping You Informed Of The Latest Advances In Science And Technology

In this edition of the Watch, we get an overview of how CAMI is studying how molecular profiles are affected by factors that influence aviation safety, e.g. fatigue, alcohol, and hypoxia.

Microarray Applications in Aerospace Medicine

Dennis Burian, Ph.D., Civil Aerospace Medical Institute (CAMI), FAA/DOT

The Federal Aviation Administration is a regulatory agency with responsibility for safety within the nation's aviation industry. In addition to its training and regulatory functions, the agency is responsible for medical certification of pilots and postmortem analysis of accident victims. As medical science enters the post-genome-sequencing era, the agency has the responsibility to investigate new technologies that can lead to better forensics, regulation, and certification.

Biomarkers have been defined by the National Institutes of Health as "a physical, functional, or biochemical indicator of a physiological or disease process that has diagnostic and/or prognostic utility" (<http://grants.nih.gov/grants/guide/pa-files/PA-05-098.html>; accessed Jan. 2006). This definition is from a request for grant applications to develop biomarkers for "well-defined human diseases of liver, kidney, urological tract, digestive, and hematologic systems, and endocrine and metabolic disorders, diabetes and its complications, and obesity" indicative of the wide array of diseases that biomarker discovery is expected to affect.

Gene expression research by microarray is a primary component of biomarker discovery because it is a high throughput approach and scans thousands of candidate genes in a single experiment. Published studies show that microarray analyses are sensitive enough to differentiate not just between normal and disease states, but differentiate subtypes of a complex disease with multiple presentations such as breast cancer (1). The more common use of microarray technology has been to determine differences in gene expression patterns between disease and healthy states; however, the technology has been used to track expression changes in otherwise healthy subjects in response to exercise (2), indicating the sensitivity and wide utility of the technology. Therefore, while genetic background cannot be ignored in the

search for therapeutic targets, expression information yields tremendous insights into the physiological response to an environmental stimulus. As an expression screening tool, microarrays determine changes in gene expression, i.e., function of the regulatory machinery, not sequence variability. The ability of microarrays to detect expression changes bodes well for our goal to characterize physiologically heterogeneous human factors such as fatigue and hypoxia or exposure to moderate levels of radiation, alcohol, toxins, or microbes.

The work performed in the CAMI Functional Genomics (FG) lab at is among the first to investigate gene expression changes in response to aerospace environment factors. Furthermore, experimental designs incorporate performance data in order to show linkage between biomarkers and the probability of impairment. Before global conclusions can be reached, each of these studies will need to be extended and further validated using alternative methods, e.g. quantitative PCR and protein arrays. As an example, a fatigue study has been performed with samples from US Air Force personnel who have all passed flight physicals (see below).

A wealth of additional biological information can be gleaned from a list of differentially expressed genes. Software tools are available to find genes that are regulated coordinately and allow the exploration of biological pathways. In this way, genes become visible that may not appear by microarray analysis but play a role in the factor being investigated. One method to discover mechanisms of coordinate regulation is to look for common transcription factor binding sites in the promoters of differentially expressed genes. Tools available in the Expander package (3) have been used first to cluster the 158 differentially expressed genes from the fatigue study into three clusters and then determine (from genomic DNA sequence data) which transcription factor binding sites are present in the promoters of each cluster's genes, suggesting the molecular basis of coordinate regulation of the cluster members. A testable hypothesis has been formulated concerning regulation of a 94-gene cluster of fatigue-related genes by interferon regulatory factor-1 from this analysis (unpublished results).

A second method of pathway analysis utilizes databases of protein-protein and protein-gene interactions obtained from the literature. These databases, (e.g., <http://www.ingenuity.com>) are mined with lists of differentially expressed genes to discover possible interactions between them; interactions between genes on the list(s) can be used to validate experimental results. These analyses also are used to discover interactions between a protein not on the list of differentially expressed genes and two or more genes that are on the list. Using this method, interactions between several differentially expressed genes and nuclear hormone receptors have been hypothesized to have a function in the response to sleeplessness (unpublished results).

It is expected that in response to the factors of interest, there will be coordinated up- and down-regulation of different genes over time. This was clearly demonstrated in the fatigue study where the majority of differentially regulated genes increased expression level between the first two time points, but a

set of genes was down-regulated between these time points as well. In addition, the factors we are exploring are biologically not on or off but function on a continuum in response to the stimulus. Therefore, a molecular signature for a particular medical factor will consist of multiple genes and their expression interrelationships.

RNA is an especially labile molecule. As such, assays for more stable gene products (proteins) are predicted to be the end goal of this body of work. One potential assay would be a custom protein array that would assess protein levels of a subset of blood proteins selected for their specificity across a range of conditions of interest. A sample would be brought into the lab and hybridized to the array. The signature seen in the unknown sample would be compared with a panel of known signature continuums for all aerospace-related human factors. A probability of impairment and the impairing factor would then be determined.

The FAA is responsible for public safety through oversight of the aviation industry. There has been a dramatic decrease in accident rates to the point that American skies are the safest in the world. However, accidents still occur and it is the goal of the agency to further decrease the accident rate. To that end, CAMI has been tasked to investigate the human equation as it pertains to aviation from all angles. FG was formed in part to bring aviation medicine into the molecular age and discover the unique molecular profiles that result from an aerospace safety-related stimulus. Factors affecting safety such as fatigue and hypoxia are of great interest in all branches of aviation—civil, general, and military—and alcohol can be a factor in general aviation. In addition, cosmic radiation poses a long-term risk to the health and well-being of pilots and aircrew, especially as spaceflight becomes a reality. An increased understanding of these factors at the molecular level is fully expected to increase safety for the flying public and aircrews through better regulation, development of targeted therapeutic interventions, and increased understanding of the risks posed by flight in general.

References

1. Miller LD, Smeds J, George J, et al. An expression signature for p53 status in human breast cancer predicts mutation status, transcriptional effects, and patient survival. *Proc Natl Acad Sci U S A* 2005; 102:13550-5.
2. Connolly PH, Caiozzo VJ, Zaldivar F, et al. Effects of exercise on gene expression in human peripheral blood mononuclear cells. *J Appl Physiol* 2004; 97:1461-9.
3. Shamir R, Maron-Katz A, Tanay A, et al. EXPANDER—an integrative program suite for microarray data analysis. *BMC Bioinformatics* 2005; 6:232.

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.

AsMA Board Certification in Aerospace Physiology:

Board certification in Aerospace Physiology was first offered by the Aerospace Medical Association in 1977, as a result of the efforts of nine past presidents of the Aerospace Physiology Society.

The objectives of the certification program are to:

- Encourage the study, improve the practice, and elevate the standards of excellence in Aerospace Physiology;
- Promote the professional stature of the Aerospace Physiology Society within the Aerospace Medical Association;
- Provide an avenue for professional and peer recognition; and
- Serve as a goal which members can strive to attain through dedication, self-study, and personal contributions to the Aerospace Medical Association and the Aerospace Physiology Society.

The examination process begins with eligibility and registration. The exam itself will be presented on Sunday, May 13, 2007, during the first day of the Aerospace Medical Association Annual Scientific Meeting in New Orleans, LA. All those interested in sitting the exam should contact the Certification Committee through Major Julia Sundstrom (530-634-9227; julia.sundstrom@beale.af.mil).

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

Remember!

Council Meetings are open to all members of the AsMA. Your input and attendance are always welcome. Our next meeting will be on May 13, 2007 in New Orleans, LA.

MEMBERS*MEMBERS

Have you recruited a new member this year? If each one of us recruited at least one new member, we could actually double our membership with a mere stroke of the pen.

Adopt the slogan:
"EVERY MEMBER
GET A MEMBER."

MEETINGS CALENDAR 2006-2007

March 1-4, 2007, Orlando, FL. The American College of Legal Medicine's 47th Conference on Legal Medicine at the Caribe Royale Resort. For more information visit www.aclm.org or contact Sue O'Sullivan at info@aclm.org or by phone at 847-969-0283.

March 19-21, 2007, Annapolis, MD. 2007 Human Systems Integration Symposium. Info: Jennifer McKneely, Symposium Chair, jennifer.mckneely@jhuapl.edu; www.navalengineers.org/Events/HIS2007.

April 3-6, 23, 2007, Cocoa Beach, FL. Human Performance, Situation Awareness, and Automation (HPSAA III) Technology Conference. Info: Mustapha Mouloua, Conference Chair, Dept. of Psychology, P.O. Box 1390, Orlando, FL, 32816, 407/823-2910, fax 407/823-5862, mouloua@pegasus.cc.ucf.edu, <http://faculty.erau.edu/hpsaa/>.

April 15-20, 2007, Honolulu, HI. 2007 International Conference on Acoustics, Speech and Signal Processing. Info: Institute of Electrical and Electronics Engineers, info@icassp2007.com; www.icassp2007.org.

April 16-19, 2007, Cobo Center, Detroit, MI. 2007 Society of Automotive Engineers

World Congress. Info: Society of Automotive Engineers World Headquarters, 400 Commonwealth Dr., Warrendale, PA 15096, 724/776-4841, mjena@sae.org, <http://www.sae.org/congress>.

April 17-19, 2007, Nottingham UK. Ergonomics Society Annual Conference. Info: Sue Hull, Ergonomics Society, Elms Court, Elms Grove, Loughborough LE11 1RG, UK, +44 0 1509 234904, fax +44 0 1509 235666, hulls@ergonomics.org.uk, <http://www.ergonomics.org.uk>.

April 22-26, 2007, Dayton, OH. International Symposium on Aviation Psychology: "Airspace as a Cognitive System." For more info, visit www.wright.edu/isap.

April 23-26, 2007, Dayton Convention Center, Dayton, OH. 14th International Symposium on Aviation Psychology. Info: Richard Jensen, 5329 Van Fossen Road, Johnstown, OH 43031, 740/967-4030, rjensen@core.com, <http://www.wright.edu/isap/>.

April 28 - May 3, 2007, San Francisco, CA. 2007 International Performance Improvement Conference. Info: International Society for Performance Improvement, 1400 Spring St., Ste. 260, Silver Spring, MD 20910, 301/587-8570, fax 301/587-8573, <http://www.ispi.org/ac2007/>.

AME Seminar Schedule for 2006-2007

Feb. 2-4, 2007	San Diego, CA	N/NP/P (2)
Mar. 5-9, 2007	Oklahoma City, OK	Basic (1)
Mar. 16-18, 2007	Bellevue, WA	Cardio (2)
May 14-17, 2007	New Orleans, LA	AP/HF (3)
June 11-15, 2007	Oklahoma City, OK	Basic (1)
July 13-15, 2007	Oklahoma City, OK	N/NP/P (2)
Aug. 17-19, 2007	Washington, D.C.	OOE (2)
Sept. 14-16, 2007	Savannah, GA	Cardio (2)

(1) A 4½ day basic AME seminar focused on preparing physicians to be designated as Aviation Medical Examiners. **Call your Regional Flight Surgeon.**

(2) A 2½ day Theme AME seminar consisting of approximately 12 hours of AME specific subjects plus 8 hours of subjects related to a designated theme. **Registration must be made through the Oklahoma City AME Programs Branch.** Call Lea Olsen (405) 954-4258.

(3) A 3½ day Theme AME seminar held in conjunction with the Aerospace Medical Association (AsMA). **Registration must be made through AsMA** (703) 739-2240.

N/NP/P	Neurology/Neuro-Psychology/ Psychiatry Theme
Cardio	Cardiology Theme
AP/HF	Aviation Physiology/Human Factors Theme
OOE	Ophthalmology, Otolaryngology, Endocrinology Theme

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section of the website!

Journal CME/MOC Reminder

AsMA has been running a feature that accredits certain articles published in *Aviation, Space, and Environmental Medicine* for Continuing Medical Education (CME) and Maintenance of Certification (MOC). Three articles are selected every issue for which there are questions. Physicians desiring CME/MOC must answer the questions on a form and submit it with payment to the Home Office. The Home Office will grade the questions and archive CME/MOC credit. This means a physician can accumulate a maximum of 33 hours of CME/MOC each year. (Because the March issue contains only abstracts of the Annual Scientific Meeting, only 11 issues will have questions.) Specific instructions will accompany each accredited article.

Russell B. Rayman, M.D.
Executive Director

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

Message from the ANS President

Happy New Year! It is such an exciting time! The Aerospace Medicine Association (AsMA) Council and Scientific Program Committee meetings were held in Alexandria, VA, in November. Aerospace Nursing Society (ANS) had six members volunteer to attend the meeting. The members have provided their expertise in the review of abstracts for panels to be included in the AsMA Scientific Meeting in New Orleans in 2007. Those members are Marian B. Sides', Eileen Hadbavny, Kirk Nailling, Diane Fletcher, Cathy DiBiase, and Janet L. Sanner.

The program design, research findings, and outcomes will be presented in May 2007 at the 78th Annual Scientific Meeting of the Aerospace Medical Association in New Orleans, LA. The Aerospace Nursing Society sessions are directed at flight nursing in both the military and the civilian settings. Flight nursing panels will cover many topics related to emergency and crises interventions that include case scenarios, presented by National and International Members. ANS members may receive CEUs for attending these sessions. Please check with your nursing certification boards, since they may accept the CME credits if topics are directly related to your nursing specialty.

ANS call for awards nominations is now in progress. Please use the AsMA awards criteria and nomination format

(<http://www.asma.org/members/awards/awardnomform.doc>) for the following awards:
 Brig. Gen. E. A. Hoefly Award
 Brig. Gen. Claire Garrecht Nursing Scientific Paper Award (must have submitted a paper to the AsMA annual meeting)
 Dr. Hans Krakauer Junior Nurse Officer Award

Edward R. Iversen Sr Allied Health Professional of the Year Award.

Nominations for the Hoefly Award must be submitted to either the ANS President or the Immediate Past President NLT 15 January. Nominations for the Brigadier General Claire Garrecht Scientific Paper Award must be submitted to the ANS Awards Committee Chairperson, Charles Tupper. The Chairperson should have at least three doctorate-prepared nurses review the scientific papers for quality and select the best paper. All other awards should be submitted to the ANS Award Chair. However, at this time, he is deployed so please submit them to Janet L. Sanner, ANS President. The Email address is: Sanner@numail.org or Janet.Sanner@faa.gov. Remember your nominations are due by January 15, 2007.

Just a reminder, ANS is looking for articles related to care on the ground and in the air for publication for the AsMA Journal page. We would like to hear from you so that we can share your story. Can you take a few minutes to write a narrative that is special to you and send it to us to share with each other? There is still time to share previous and present experiences before the 78th

Annual Scientific Meeting of the Aerospace Medical Association in New Orleans, LA.

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

SPACE MEDICINE BRANCH YOUNG INVESTIGATOR AWARD

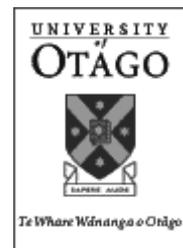
The Space Medicine Branch's Young Investigator Award is presented to a young investigator who is the primary author of an outstanding presentation in the area of Aerospace Medicine presented at the current Annual Scientific Meeting of the Aerospace Medical Association. In addition to being the primary author, the work must be original and the young investigator must be presenting at the Annual Scientific Meeting for the first time. The Award is intended to encourage young investigators new to the field of Aerospace Medicine.

The applicant must submit a draft manuscript if their presentation to the chair of the Young Investigator Award sub-Committee. To be considered for the 2007 award, manuscripts must be submitted by March 15, 2007 to:

K. Jeffrey Myers, M.D.
 Space Medicine Branch
 Young Investigator Award Chair
 P.O. Box 540305
 Merritt Island, Florida 32954
 Phone: (321) 867-2026
jeffrey.myers-1@kmail.ksc.nasa.gov



Wellington School of Medicine, University of Otago, PO Box 7343, Wellington, New Zealand.
Fax: +64-4-3895427



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For more information, contact us:

Visit our web site at www.otago.ac.nz/aviation_medicine

Call the Programme Manager Maureen Gordon on +64-4-3855590 or email via deptmed@wnmeds.ac.nz

Contact Academic Programme Coordinator, Dr Robin Griffiths, on +64-21-620148 or email via rob.griffiths@otago.ac.nz

Send information for publication on this page to: **Dale Orford**
15516 E Acacia Way,
Fountain Hills, AZ 85268
480-837-7919; dorford@cox.net

WING NEWS & NOTES

Message from Our President

By Conoly Barker

Aloha and Happy New Year!

This is the time of year when thoughts turn to the year ahead. The Wing Nominating Committee will be beginning their work of finding officers for next year and our incoming President begins selecting the members of her board. One of the joys of membership in the Wing has always been the bond of friendship that we develop over the years. One of the best ways to really get to know other members and more about the working of the Wing is to be involved as an officer or as a committee member. So I ask each of you to carefully consider the many different options available - you will find a list of the elected officers and appointed chairmen and board members in the front of your Wing directory. If you see an area in which you think you would like to serve, why don't you give Trish Trifilo or Harriet Hodgson or Susi Bellenkes a call? Their numbers are in the directory too! And if they give you a call first, please consider accepting a position. As with any organization, the Wing can always use new people and new ideas. From experience, I can tell you that none of the jobs are a burden, as there are always plenty of people to lend a helping hand!

By-Law Change First Notice

A motion was made and passed by the Board to amend By-Laws, Article VI, Section 2: as follows:

The Nominating Committee shall be the two (2) most recent Past Presidents of the Wing and the five (5) Board Members-at-Large. The most recent Past President shall be the Chair of the Committee.
Guidelines for this Committee:

1. Deadline for nominations to be completed by March 1 prior to the May meeting.
2. The first meeting of the Nominating Committee will be after the Wednesday Changeover Board Meeting.

This change in the By-Laws will be posted at the meeting as required.

Meet Issy Jennings, The Wing's Honorary President

Issy and her family reside in Clear Lake City, TX, a suburb of Houston. Her husband, Richard, was a flight surgeon with NASA for 8 years before accepting a position with the University of Texas Medical Branch at Galveston. Issy says that they enjoy living in this area, except when it is time for a hurricane evacuation!

The Jennings have two grown daughters. Their oldest daughter, Sarah, lives in San Antonio where she is a prosecuting attorney. Issy says, "Richard has to curb the lawyer jokes in her presence." Their youngest daughter attends OSU-Okmulgee, where she is a culinary arts student. Neither girl has wedding bells ringing in her ears as yet.

A teacher by vocation, Issy has taught early childhood education, creative arts, elementary education, and special education. She says, "Meeting the needs of struggling learners is my area of interest. I have taught in both the public and private sector. I found Polly Vacher's speech at AsMA exhilarating and her devotion to the disabled inspirational."



Issy has had a long time interest in aviation as her father was an instructor pilot for the Navy during World War II. She says, "Richard has always been the owner of a small plane since we married. That has enabled us to stay in touch with family and friends who live long distances. I took some lessons when I was pregnant with our oldest daughter - enough to solo a couple of times."

"I first joined the Wing in Kansas City where Judy Waring recruited me, and I really enjoyed the planned activities and new friendships I made in Orlando. I am very much looking forward to our meeting in New Orleans, and I am honored to serve as the Wing's Honorary President."

Let the Good Times Roll!

As they say in New Orleans, "Laissez les bons temps rouler," and our arrangements committee has endeavored to provide you with just such an experience. Dianne Okonsky-Hudson and her crew have arranged a fabulous itinerary for our week with two outstanding tours, receptions and luncheons.

Our all-day Tuesday tour will begin at the famed New Orleans School of Cooking where we will learn the secrets and history of classic New Orleans cuisine. Located in a renovated molasses warehouse built in the early 1800's in the heart of the French Quarter, the school teaches the basics of Louisiana cooking in a way you will never forget. Fun is the primary ingredient in the kitchen where experts teach you the Creole/Cajun specialties of gumbo, jambalya and pralines, seasoning them with history, trivia and tall tales. It is a "ga-ron-teed" good time for all! Following lunch at the



NEW ORLEANS BUGGY RIDES--The horse and buggy rides are back and the streets of New Orleans await our meeting. (Photo courtesy of David J. Schroeder.)

school (included in the tour), we will make our way to Mardi Gras World where we will take a look behind the magic of Carnival. Blaine Kern's Mardi Gras World showcases sensational sculpted props and breath-taking giant figures such as a gigantic jovial jester, fiercely realistic alligators, Marilyn Monroe, complete with skirt flying, as well as some of the most awesome floats ever built for Carnival. This is a unique experience and a tour you will not want to miss.

Our Thursday half-day tour will take us to the Oak Alley Plantation - the "Grande Dame of the Great River Road." The plantation is situated on the Mississippi River between the historic Louisiana cities of New Orleans and Baton Rouge, and features a spectacular setting with a quarter mile canopy of giant oak trees believed to be 300 years old, leading to the classic Greek revival style antebellum showplace. Built in 1837-39, the home's most distinguishing architectural feature is a full colonnade of 28 Doric Columns. Although such plantation homes were once common along the Mississippi River, Oak Alley is considered to be the finest of those remaining. The tour of the home will be conducted by guides in period costume, and a short period will be allocated for strolling the magnificent grounds. A buffet lunch is included in this tour.

Spaces for these tours fill up quickly, and we encourage you to send in your registration forms as soon as possible to avoid disappointment. Registration forms for all Wing activities as well as for the general AsMA meeting can be found at the beginning of this issue of the Journal.

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



OAK ALLEY PLANTATION--This 1/4-mile canopy of giant oak trees believed to be 300 years old leads to the classic Greek revival style antebellum showplace. (Photo courtesy of the New Orleans Convention and Visitors Bureau.)

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

Terry L. Puckett, M.D., M.P.H., after 20 years of service, retired from active duty in the



Navy in October 2006. His last assignment was as Deputy Chief of the Navy Medical Corps in Washington, DC. He is now the Chief Operating Officer for Holston Medical Group, a 125-physician multi-specialty group with 26 offices in east Tennessee and southwestern Virginia.

Maj. Carolyn M. Shaw, CAF, M.Sc., CAPM, previously the Commanding Officer of the Canadian Forces School of Survival and Aeromedical Training at 17 Wing Winnipeg, Manitoba, and currently working as Director Science and Technology (Human Performance), Director General Research and Development Programs, Assistant Deputy Minister (Science and Technology), Ottawa, has been deployed to Director Major Project Services (DMPS), Director General Major Project Delivery (DGMPD), Assistant Deputy Minister (Materiel) (ADM[Mat]), Ottawa. Both DMPS and DGMPD are new offices that have been formed within ADM(Mat) to support the Canadian Force (CF)'s major (> \$100M) acquisition projects. She is currently Human Systems Integration (HSI) Team Lead and is responsible to ensure the CF's major acquisition projects have the HSI support they require.

Roger L. Stork, M.S., Ph.D., formerly the San Antonio Area Manager of the Life Sciences Group, Wyle Laboratories, has been named the Director of Business Development and Strategic Planning for Wyle Laboratories' Life Sciences business unit located in Houston, TX. He was promoted to the position by Bob Ellis, Wyle Senior Vice President and General Manager of the Life Sciences unit. Prior to joining Wyle in 2000, Dr. Stork served for 29 years in the U.S. Air Force. He held many senior positions, the last being chief of the Biodynamics and Protection Division, Human Effectiveness Directorate, at the Air Force Research Laboratory at Brooks City-Base, TX. He retired in 2000 with the rank of Colonel.

Dr. Stork received his Ph.D. in physiology from the University of Alabama in Birmingham and has both a B.S. and M.S. in zoology from Auburn University. He is a Fellow of the Aerospace Medical Association and a member of the International Academy of Aviation and Space Medicine.

New Members

Ahmed, Waseem, MBBS, FRACGP, Bundaberg, Australia
 Burr, Kent D., D.O., Las Vegas, NV
 Chapman, Wendy A., Capt., USAF, NC, Shiloh, IL
 Cieurzo, Christopher E., M.D., Freeport, ME
 Compton, Jason A., D.O., Abilene, TX

Corpus, Noel M., LT, USN, Lemoore, CA
 Dreilling, Heidi M., M.B., B.S., FRACGP, Toowoomba, Australia
 Duval, Victor, M.D., Los Angeles, CA
 Fagen, Timothy D., D.O., St. Peters, MO
 Germain, Anneliese, 2LT, USA, Silver Spring, MD
 Grasso-Knight, Giovi, M.D., New York, NY
 Heacock, Kevin F., Capt., USAF, MC, Wynnewood, PA
 Jain, Varsha, M.B., B.S., B.Sc., W. Midlands, UK
 Kamine, Tovy H., B.S., Philadelphia, PA
 Kelstrom, Jared L., M.D., Brush Prairie, WA
 Lovell, Clive T., M.B., B.S., Potts Point, Australia
 McIntee, Marie-France M., D.O., Bala Cynwyd, PA
 Miller, David C., D.O., Jacksonville, AR
 Molony, James A., B.Sc., Glasgow, UK
 Morgan, Samantha A., Nashville, TN
 Nicholas, Edward B., B.Sc., BMS, Kent, UK
 Pankey, Patricia A., M.D., Albuquerque, NM
 Pead, Joshua B., D.O., Barksdale AFB, LA
 Perdikis, Serafim, M.D., Abilene, TX
 Proffitt, Aaron, 2LT, MSC, USAR, Cincinnati, OH
 Punnoose, Jiju K., M.B., B.S., Birmingham, UK
 Saran, Tajinder, M.B., B.S., Warwick, UK
 Schroeder, Erich W., M.D., Bossier City, LA
 Sheddan, Gavin T., M.B., Ch.B., D.Av.Med., Dublin, Ireland
 Storey, Stephen T. D., M.D., Laughlin AFB, TX
 Stoutt, Glenn R., M.D., Louisville, KY
 Strader, James R., Maj., USAF, MC, Brooks City-Base, TX
 Summerfield, Douglas T., Omaha, NE
 Thornton, Jennifer L., R.N., Federal Way, WA
 Williams, Maureen, Maj., USAF, MC, FS, San Antonio, TX
 Zeller, Jr., David A., CPT, USA, APO, AP
 Ziarnick, Melissa, 1Lt., USAF, Wichita Falls, TX

In Memoriam

John P. Marbarger

John P. Marbarger, who was the Editor of Aviation, Space, and Environmental Medicine from 1960-1980, inclusive, died in



September in Fort Myers, FL, at the age of 90. Under his editorship the "blue journal" grew from about 46 pages of scientific articles printed 6 1/2 x 9 3/4, to nearly 90 pages at 8 1/4 x 11. It was his ambition to publish papers representing all the constituent organization of the Aerospace Medical Association (AsMA). He introduced many new features including "Questions and Answers of Interest to Aviation Medical Examiners" and "Clinical Problems in Aerospace Medicine" which have evolved into the "You're the Flight Surgeon" and "Cases from CAMI" columns.

Dr. Marbarger was a member of AsMA's Awards Committee for 9 years, served as Vice President in 1957, and was involved in the Scientific Program Committee in 1955. He also had been a member of the Editorial Board from 1957 to 1960. A Fellow of the Association, he was the 1971 recipient of the Theodore C. Lyster Award and the 1954 recipient of the Arnold D. Tuttle Award.

A strong advocate for space research, he authored the first book on space medicine, published in 1951. The contents of this volume represent the first symposium on this topic held at a university in the United States. He was a charter member of AsMA's Space Medicine Association (SMA) and served as its Chairman from 1952-1953. He was also involved in SMA's scientific program for 5 years.

A native of Pennsylvania, Dr. Marbarger earned a B.S. from Lebanon Valley College in Annville, PA, in 1938 and a Ph.D. from John Hopkins University in Baltimore, MD, in 1941. After a year of graduate research at John Hopkins, he entered the Army Air Corps. During the next 4 years, he participated in aeromedical research programs involving motion sickness, oxygen breathing under positive pressure, and human tolerance to extreme temperatures and vapor pressure changes in the environment. He spent several years in the Department of Physiology at the College of Medicine, University of Vermont, and then joined the University of Illinois in 1947, where he served as the first Director of the Aero-Medical Laboratory and as a physiology professor in the University's College of Medicine until his retirement in 1980. He was a forceful spokesperson for research and under his leadership the publications from work done at the Aeromed Lab tallied over 3300.

During his career, he served on numerous advisory boards and councils within the Department of Defense and NASA. He was a member of the International Academy of Aviation and Space Medicine and the International Academy of Astronautics. His society memberships included the American Physiological Society, the Society for Experimental Biology and Medicine, the American Association for the Advancement of Science, and the American Rocket Society.

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