

# President's Page

---

Dear Colleagues and Friends,

Remarkable, edifying, rewarding, disappointing, humbling, exhilarating...these few words cannot begin to describe what it has been like this past year. I am hoping that with this, my opus ultima as your President, I will be able to convey even a modicum of what it has been to work with and for the AsMA family. This past year is best characterized as dynamic.

It has not been an easy task, trying to fill the shoes worn by those who have come before me. Still, let's take a quick look at just a few of the accomplishments that we, AsMA, have made since May, 2008.

- Several of our committees, constituent groups and the Home Office were able to create and release three major policy letters on topics as diverse as commercial airline anonymous safety reporting, space crew medical standards, and helicopter medical evacuation issues.

- The AsMA website now has a translation tool, facilitating its use by members from all parts of the globe.

- Thanks to the hard work of a special ad hoc committee, the AsMA Home Office is now working with a consultant to update its home office information technology system.

- AsMA has a core group of volunteers who, for a number of years, have provided aid to fellow members in need. Most recently, these selfless heroes provided invaluable help to colleagues living and working on the hurricane-ravaged Gulf coast of the United States.

- AsMA's international membership continues to grow and our non-U.S. members have been more active than ever. A number of non-U.S. professional aeromedical associations have joined the growing ranks of AsMA Affiliates.

- Shortly after the European Society of Aerospace Medicine (ESAM) became an AsMA affiliate, AsMA became an Associated Member of ESAM--an exciting example of international professional cooperation and comrade.

- The Executive Committee (ExComm) has started working with consultants to update the AsMA Strategic Plan. The new plan is expected to better address the short- and long-term needs of the AsMA membership.

Of my many taskers as President, my only regret has been at not being able to bring a new Executive Director onboard during my tenure. One of the more difficult decisions being weighed at the heart of the ED selection process has been whether or not to change the nature and scope of those duties usually assigned to the ED, and with that, the professional background of the individual who would be hired for that position.



Andrew H. Bellenkes, Ph.D.

There have been strongly held and differing opinions on this matter for some time, and ExComm has unfortunately been unable to agree on the issue. Thus, this matter is being sent to the AsMA Council; the governing body that, in the end, must decide who should be hired for this position. This issue will be the first item discussed during our Council meeting that will be held on the Sunday prior to the start of our Annual Scientific Meeting in Los Angeles in May. The results of the discussion and vote taken immediately at the conclusion of this discussion will guide the ED selection process during the months to come.

During this past year, I have greatly valued the many opportunities I have had to speak with so many of you, to hear what it is about AsMA that you so much value, and to learn of those things that you believe could be improved. All of your comments have been taken to heart and, where possible, implemented. Whether it is our journal, our annual meeting, or in the way we 'do business', your inputs have been and shall remain critical in the steering of our course.

In this regard, I have been blessed with so many zealous and selfless colleagues and friends, true professionals, who gave so much of their time and expertise and with whom I have had the pleasure of working closely. Together we were able to accomplish so much, all for the betterment of our association.

*To Dr. Rayman and the marvelous staff at the AsMA Home Office and Journal:* You have my unending thanks for all your patience, guidance, and support.

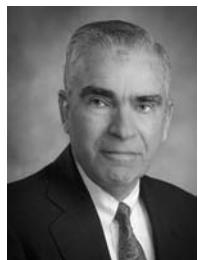
*To my colleagues on the Executive Committee, the Council and the numerous members from whom I have sought guidance on critical issues:* Many thanks for your always wise counsel.

*To the many Constituent and Affiliate associations, the committees, and our AdHoc groups:* You have worked so very hard and contributed so much to enhance AsMA's already high levels of professionalism. You have made our organization the voice of international aerospace

*See PRESIDENT'S PAGE, p. 506.*

# Association News

## Executive Director's Column



Rayman

### With Appreciation

On behalf of the President, officers, and members of the Aerospace Medical Association, I would like to express our deep gratitude to all of the corporations, companies, and businesses that have provided us with such consistent support over the years. AsMA simply couldn't make it without this support. Literally, tens of thousands of dollars reach our coffers every year that represents a main line of revenue flow. This money goes towards general operations, the journal, the scientific meeting, and the Foundation. I cannot list all

PRESIDENT'S PAGE, from p. 505

medicine. For this you can all be very proud indeed!

*To our Awards Sponsors:* Your very gracious generosity has made it possible for our members to be publically recognized over the years; I am most grateful for your incontinued involvement and support.

*To our Corporate Members and our Exhibitors:* Your consistent support over the years continues to make our mission possible.

*To the members of our splendid WING:* You bring so much to this organization, enabling the spouses and friends of our members to be a central part of AsMA. I cannot thank you enough for your many contributions to the AsMA family.

*Finally, to the entire AsMA membership:* I thank you all for your support and encouragement; it is you who continue to define AsMA as a professional organization, and I am very grateful indeed for your involvement, your passion for aerospace medicine, and most of all, for your defining AsMA not as just a professional society, but as a family.

Let me close by again letting you know how much of an honor and pleasure it has been to serve you, the AsMA membership, as your President this past year.

these contributors because there have been so many although you can find listings of our Corporate and Sustaining members, sponsors of our awards, and sponsors of our Bauer and Armstrong Lectures in our journal, on our website, and in the printed program of the Annual Scientific Meeting. I would urge all members to take note and to thank our commercial supporters whenever you have the opportunity. A good time for this is when you are walking through the exhibit area at our meeting. They really need to know how much we appreciate all of their efforts. Some of our sponsors have been with us as long as 30 to 40 years while others have come on board more recently. In any event, they have provided the aerospace medicine community with a tremendous service. We owe them a handshake, a salute, and an expression of our deep appreciation.

### Fifty Years Ago

"The Aerospace Medical Association succeeded the Aero Medical Association at the thirtieth annual meeting of the society in Los Angeles last month. The name change was voted overwhelmingly by the members and announced by Brigadier General M. Samuel White, USAF, president, at the gala dinner at the Statler Hilton Hotel on April 30 which officially closed the most successful meeting in the organization's long history. The total registration was 1,473.

"Effective with the June number, the JOURNAL OF AVIATION MEDICINE, the oldest serial publication in the world devoted to this specialty, will be known as AEROSPACE MEDICINE" (1).

"The new headquarters of the Aerospace Medical Association has been established at Washington National Airport, Washington, D.C., Dr. Ludwig G. Lederer, president, has announced" (1).

#### REFERENCE

1. Aerospace Medical Association chosen in name change; Awards and elections at 1959 meeting. *J Aviat Med*, 1959; 30(6):368-371. [See "This Month in Aerospace Medicine History," p.504, for more fascinating excerpts from historical articles.]

### Articles of Aeromedical Interest

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

1. Lastilla M, Biselli R, Di Stefano M, Autore A, Sarlo O. Air evacuation under biosafety containment of patients with highly contagious infectious diseases. *International Review of the Armed Forces Medical Services* 2008; 81(4):203-4.
2. Markou I, Kararizou E, Gkiatas K, Manoli D, Naoumis D, Kouremenos E, et al. Spatial disorientation prevalence among Hellenic Air Force pilots: a meta-analysis. *International Review of the Armed Forces Medical Services* 2008; 81(4):258-9.

### MEETINGS CALENDAR 2009

May 3-7, 2009; 80th Annual Scientific Meeting of the Aerospace Medical Association, Westin Bonaventure Hotel, Los Angeles, CA. [www.asma.org](http://www.asma.org)

June 2-4, 2009; 4th International Conference on Whole-Body Vibration Injuries; Hilton Montreal Bonaventure Hotel, Montreal, PQ, Canada. Info: Institut de recherche /Robert-Sauvé en santé et en sécurité du travail (IRSST), <http://www.irsst.qc.ca/en/home-vibrations-2009.html>

June 11-12, 2009; XXIst Annual International Occupational Ergonomics and Safety Conference 2009; Hilton Garden Inn DFW, Dallas, TX. International Society for occupational Ergonomics & Safety; <http://www.isees.info/conference.htm>

June 25-27, 2009; Undersea & Hyperbaric Medical Society Annual Scientific Meeting; Crowne Plaza Los Cabos Grand Faro Beach Resort, Mexico. Info: Lisa Tidd/Stacy Rupert [uhms.org](http://uhms.org); [www.uhms.org](http://www.uhms.org)

June 29-July 2, 2009; 8th USA/Europe Air Traffic Management Research & Development Seminar; Napa, CA. FAA and EUROCONTROL, [www.atmseminar.org/](http://www.atmseminar.org/)

July 19024, 2009; HCI International 2009—13th International Conference on Human-Computer Interaction; Town and Country Resort & Convention Center, San Diego, CA. <http://www.hci2009.org/>

August 9-14, 2009; IEA 2009—17th World Congress on Ergonomics; Beijing Juhua International Conference and Exhibition Center, Beijing, China. International Ergonomics Association, <http://www.iea2009.org/>

October 4-9, 2009; 38th World Congress on Military Medicine; Kuala Lumpur, Malaysia. Info: [www.wcmmk12009.com](http://www.wcmmk12009.com)

October 18-19, 2009; Seventh Annual Meeting of the Society for Human Performance in Extreme Environments; Grand Hyatt, San Antonio, TX. <http://www.hpee.org/>

October 19-23, 2009; 53rd Annual Meeting of the Human Factors and Ergonomics Society; Grand Hyatt, San Antonio, TX. <http://hfes.org/web/HFESMeetings/09annualmeeting.html>

October 19-21, 2009; SAFE Association 47th Annual Symposium; Town and Country Resort & Convention Center, San Francisco, CA. Info: Jeani Benton (541)895-3012; [safe@peak.org](mailto:safe@peak.org); [www.safeassociation.com](http://www.safeassociation.com)

Council Meetings are open to all members. The next Council Meeting is 10:00 a.m., Sunday, May 3, 2009, at the Westin Bonaventure Hotel in Los Angeles.

# SPACE MEDICINE ASSOCIATION NEWS

Send information for publication on this page  
to: Genie Bopp  
[ebopp@wylehou.com](mailto:ebopp@wylehou.com)

## President's Message

It has been a rewarding and successful year for the Space Medicine Association (SMA). We continue work toward our primary mission, which is to promote the development and understanding of the field of Space Medicine and to encourage research and education in the discipline. During the year, the SMA established two new awards, formed an International Committee and a Data Archives Committee, sponsored several intriguing panels for the upcoming scientific meeting in Los Angeles and actively participated in the AsMA Council. The SMA also had the opportunity to contribute to the development of the AsMA Position Paper on Commercial Spaceflight Pilot Medical Standards. This position paper will be influential in the development of medical standards for the emerging commercial spaceflight industry. As the commercial spaceflight industry evolves, SMA will take a proactive role in recommending medical standards for commercial pilots and passengers on both suborbital and orbital missions. A Working Group will be established at the meeting in Los Angeles to begin work on the Orbital Standards.

The newly formed International Committee, chaired by Dr. Volker Damann of the European Space Agency (ESA), will increase the visibility and improve communication about Space Medicine with participation from members of all space faring nations. The committee objectives are to: increase the international membership of the SMA, coordinate an International Panel at the annual AsMA meeting, develop academic programs and a standard international space medicine curricula, and establish an international "technology watch network" to identify and share information on new technologies and innovations world wide.

The SMA invites you to attend the SMA sponsored slide panels at the meeting Los Angeles:

### Monday May 4, 2009

*Clinical Spaceflight Data and Re-entry Problems*

*Commercial Spaceflight: Challenges, Opportunities and Updates*

### Tuesday May 5, 2009

*Space Medicine Grand Rounds*

*ISS Research Results and Applications to Medical Operations*--featuring a downlink video from Dr. Mike Barratt, SMA member, who will make his remarks from the International Space Station

### Wednesday May 6, 2009

*Sleep and Medical Modeling in Space*

*The History of Space Medicine II: The Skylab Breakthrough*--featuring presentations by Joseph Kerwin, Chuck Ross, Owen Garriott, Bill Thornton and Carolyn Huntoon.

### BOOK SIGNING

Skylab astronauts, Joe Kerwin and Owen Garriott will be available just prior to the Space Medicine Association Luncheon to sign copies of their newly released book "Homesteading Space." You can bring your copy of the book or purchase a copy at the meeting.

### Aerospace Physiology Society Luncheon Wednesday 6 May 09 at 1200

Gather together with friends, colleagues and new acquaintances for lunch, a touch of business, a few awards presentations, and a special guest to deliver the Smith Ames Lecture, Colonel (Ret) Joe Kittinger. Colonel Kittinger was assigned to the Aerospace Medical Research Laboratories at Wright-Patterson AFB and assigned to Project Excelsior (meaning "ever upward") as part of research into high altitude bailout. During this time he made a series of three parachute jumps wearing a pressurized suit, from a helium balloon with an open gondola and culminating with a final jump on 16 August 1960 from 102,800 feet (31,300m). His freefall time of 4 minutes and 36 seconds will surely be exceeded during the Smith Ames lecture, but you don't want to miss the opportunity to hear about the adventures both past and present of one of the pioneers of aviation and atmospheric discovery. Tickets are \$35 and will be available at the AsPS information table or through early registration prior to the AsMA meeting.

### Lunar Technology: the Next Horizon

Don't miss the SMA luncheon on Thursday, May 7 during the Annual AsMA Scientific Meeting in Los Angeles. Generous donations from Wyle Integrated Science and Engineering, Dr. Jeffrey Myers, and Dr. Jeffrey Davis make it possible for us to continue sponsoring the Jeffrey Myers Young Investigator award each year and to begin giving a scholarship sponsored by Jeffrey R. Davis for a student of Space Medicine. Also for the first time we will present the SMA Journal award. This award, developed by Dr. Mark Campbell, will recognize the most outstanding article published in the ASEM journal, authored by an SMA member. The Hubertus Strughold award presented for dedication and outstanding contributions in advancing the frontiers of Space Medicine, will be given to Dr. James Vanderploeg and a Special President's award will be given to Dr. Joe Kerwin at the luncheon. The luncheon will also feature the Wyle Invited Lecture by Dr. Christian Otto who will share photographs and data from his Mt. Everest and Antarctic experiences. He will discuss Medical Operations on Mt. Everest and at the South Pole and the lessons learned as they can be applied to Space Exploration Missions. Get your tickets early as the SMA luncheon is always a sell out!

Be sure to look in the April issue of ASEM, specifically for the article summarizing the SMA sponsored Space Medicine History panel from the 2008 meeting to read the remarks given by Chuck Berry, Wyck Hoffer, Clarence Jerrinigan, Joe Kerwin, and Stan Mohler about the early years of Space Medicine at NASA.

I encourage you to join the SMA or consider contributing to our scholarship fund if you are practicing in the field of Space Medicine or are interested in learning more. The SMA website is becoming one of the most comprehensive locations for historic and current Space Medicine data: [www.asam.org/Organization/smb/smb.htm](http://www.asam.org/Organization/smb/smb.htm). If you have historic data to share, please contact our webmaster Dr. Mark Campbell at [mcamp@1starnet.com](mailto:mcamp@1starnet.com). If you are a member and wish to enter the members section but don't have the password, please contact me [ebopp@wylehou.com](mailto:ebopp@wylehou.com).

We look forward to seeing you in Los Angeles.

Genie Bopp  
SMA President 2008-2009



## European School of Aviation Medicine

### Training courses 2009 / 2010 for JAA - Aero Medical Examiners

**AME class 2**  
**Basic course**      19 - 27 September 2009

**AME class 1**  
**Advanced course**    5 - 13 December 2009

**Aviation Medicine/  
Travel Medicine  
Diploma course**    20 - 28 March 2010

(All courses in English language)

**Venue: Hotel Dorint, Wiesbaden/Germany**

Application form and further details under  
[www.eusam.org](http://www.eusam.org) or [www.flugmed.org](http://www.flugmed.org)

# AEROSPACE NURSING SOCIETY NEWS

Send information for publication on this page to:

**Kim Barber**  
**flygl141@woh.rr.com**

## Colleagues...Friends,

I can hardly believe this is my last submission as your President. It will not be too long until we are all attending the 2009 Scientific Meeting in Los Angeles; my! how time flies as it seems like we just left the last meeting in Boston! This year has been a whirlwind for me, as I'm sure it has for you as well. I hope everyone has had a productive and prosperous year. Thank you for allowing me the privilege and opportunity to serve as your president. The experience has expanded my horizons both professionally and personally.

I think it only fitting to depart with a nod to the importance of continuing our quest to improve our professions through expanding our knowledge base. One of the most important ways to accomplish this is through research; hence the importance of our parent organization and its constituencies. Through the power of research, we are able to engage clinicians, improve the lives of our patients and fellow colleagues, and forge a professional legacy for others to emulate (1).

Using research to substantiate nursing practice is a relatively new concept for the nursing profession as, previously, concepts of care have been passed on via tradition and perceived best practices. The emphasis on evidence-based practice has only been promoted within the last 10 years as the focus on research-based decision making has been stressed for improving care. However, patients should receive care based upon the best available scientific knowledge; care should be standardized across the continuum and not vary from clinician to clinician or from place to place.

In our daily practices, we are over-tasked and stretched for resources, time, and money. Based upon these factors, it is all too easy to discover that clinically important research findings are either not known by practitioners or not utilized in daily practice. This fact was personally brought home to me during my graduate study research when I discovered the hospital where I was practicing was not using current, best-practice techniques for testing placement of naso-gastric tubes in patients.

Efforts to instill and sustain research-based practices improve significantly when staff is encouraged to be involved in research projects from the beginning. This builds a foundation of knowledge and infrastructures that enables processes that engage clinicians while allowing them to apply knowledge gained in practical, hands-on ways. According to Gawlinski (1), in her article addressing the power of clinical nursing research, the presence of structures that encourage staff creativity by providing education and securing early involvement, creating internal expertise for research-based practice, and ensuring research implementation into patient care practices are what distinguishes effective

from ineffective research and evidence-based practice programs.

So, you say, this is all good information to know, but what does this have to do with me and my practice? More than you know. As stated, research should be the basis for everything we do. As such, this means that we all have a stake in what knowledge is out there and what we implement as practice standards. As front-line clinicians, we are all responsible for using research as the basis for our practice decisions, implementing research-based practices, educating others through involvement, synthesizing and integrating current research into daily practices, and improving future practice and lives through improved care.

There are many ways for accomplishing this in your places of employment. Start a research group or journal club in your organization. Plan to meet once a month to discuss a research article relevant to your practice area. Then utilize your newly-found knowledge to improve your practice, create a healthy environment for colleagues, and improve the lives of others. Look for problems in your practice that are "practice issues". Use your expertise and the expertise of colleagues you work with to lead an evidence-based practice change in your area. If you work in a hospital or similar environment, work with others to engage staff in the research process either through starting a research fellowship program or a research mentoring program. Through the use of the Internet and other resources you can improve patient outcomes, improve practices standards and the science of nursing, and assist in developing a professional and personal legacy.

I know, you say, research takes time and effort. However, what is significant and contributes to society always requires effort and hard work. Anyone who practices with an open mind in the allied science or medical areas sees things which might be accomplished better or contemplates changes that will improve outcomes or care. Our involvement in the advancements of research and research-based practices will enhance our growth and development far beyond our daily practices by preparing us for future endeavors forever reminding us of this year's theme, "The Future is Not What it Used to Be".

Well, thank you for letting me air my heart. I want to thank the Home Office and all the planners for their hard work in

putting together this year's conference which again promises to be exciting and informative. The agenda is packed with a diversity of topics from basic aerospace medicine, allied health sciences, and aeromedical medicine to human factors, engineer and safety specialists' presentations. I also want to thank Pam Day for her help and support throughout this past year. Pam, your encouragement and assistance were invaluable.

At our ANS luncheon, our own Dr. Marian Sides will be our speaker and is preparing a stimulating and motivating talk which I'm sure will inspire and encourage us. We will also be welcoming our new incoming president, Lt.Col. Nora Taylor as well as addressing the business of the society. Again, thank you for the privilege of acting as your president. It has been an honor.

**Lt. Col. Kim Barber, USAF, NC  
President ANS 2008-2009**

## REFERENCE

1. Gawlinski A. The power of clinical nursing research: Engage clinicians, improve patients' lives, and forge a professional legacy. *Am J Crit Care* 2008; 17(4):315-26.

## SAFE Call for Papers Deadline June 19, 2009!

The SAFE Association 2009 Annual Symposium will be held October 19-21 at the Town & Country Resort and Convention Center, San Diego, CA. The SAFE Symposium is the premier international showcase for professionals, inventors, equipment, and systems shaping safety in aviation, space, land, and military disciplines.

Please consider submitting papers, panels, workshops, briefings, demonstrations, and forums. All abstracts must be submitted electronically in MS Word to the SAFE Office at safe@peak.org. Please contact SAFE for a complete Call for Papers form so that your entry is properly formatted and contains the necessary information: SAFE, PO Box 130, Creswell, OR 97426-0130; (541) 895-3012; [www.safeassociation.com](http://www.safeassociation.com).

Please note that a manuscript or PowerPoint presentation will be required for publication in the SAFE Proceedings.

## AsMA Future Meetings

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

May 9-13, 2010  
Sheraton Hotel; Phoenix, AZ

May 8-12, 2011  
Egan Convention Center  
Anchorage, AK

## Join the Aerospace Nursing Society Today!

Dues are just \$10 (\$5 allied health professionals). For further information, contact:  
Diane Fletcher, ANS Treasurer  
7401 Salem Dr.  
Columbus, MS 39705  
[diane.fletcher@columbus.af.mil](mailto:diane.fletcher@columbus.af.mil) or  
[Fletcher4@charter.net](mailto:Fletcher4@charter.net)

# 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**

## News of Members:

**Dr. Annette L. Sobel** of Columbia, MO, who was a Distinguished Member of the Technical Staff at Sandia National Labs, is now serving as Assistant to the Provost and VP for Strategic Sport. She is also Adjacent Professor in Community and Family Medicine and in Electrical and Computer Engineering. She recently received the NATO award for lifetime service in the understanding of WMDs.

## New Members

Armenores, Paul, M.B., B.S., Glenelg East, Australia  
Davis, James R., M.D., Mustang, OK  
Granger, Matthew, Monument, CO  
Hedge, Aparna, M.B.B.S., RAAF Base Edinburgh, Adelaide, Australia  
Hendriz, Amy E., San Diego, CA  
Johnson, Valeria V. T., M.D., B.S., San Antonio, TX  
Prychodko, Andrew W., M.D., Fort Worth, TX  
Robertson, Erin K., M.D., Burlington, MA  
Wagner, Erika B., Ph.D., Cambridge, MA  
Williams, Shawnee, Capt., USAF, BSC, Las Vegas, NV

## In Memoriam

### Pioneer of the G-Suit, Earl H. Wood, Has Died

By Jan Stepanek, M.D., M.P.H., (Director Aerospace Medicine Program, Mayo Clinic, Scottsdale, AZ), Barry Gilbert, Ph.D. (Special Purpose Processor Development Group, Mayo Clinic, Rochester, MN), and Pam Day

Earl H. Wood, M.D., Ph.D., emeritus professor of physiology and medicine at Mayo Medical School and Foundation, Rochester, MN, died March 18, 2009, of pneumonia following surgery for a broken hip. He was 97.

Dr. Wood was born January 1, 1912, in Mankato, Minnesota, into a family with 4 boys and one girl. He received the degrees of B.A. (1934) Macalester College; and B.S., M.S., Ph.D., and M.D. (1941), University of Minnesota working in the lab and under the guidance of Prof.

Maurice Visscher. His Ph.D. thesis dealt with the behavior of the cardiac muscle under the influence of digitalis and the role of electrolytes in this context. After working as a fel-

low of the National Research Council in the Department of Pharmacology at the University of Pennsylvania, he spent time teaching pharmacology at Harvard in 1941, when he met Dr. Charles Code, who offered

him a position at Mayo Clinic in Rochester. He returned to Minnesota to work at Mayo Clinic in the Mayo Aero Medical Unit in 1942. The work that was being carried out in the Mayo Aero Medical Unit centered on solving the danger of G-induced loss of consciousness (G-LOC) posed by high G forces encountered by fighter pilots in aircraft and the dangers of flight at extreme altitudes including hypoxic incapacitation and altitude induced decompression sickness. Dr. Wood joined a team of fellow scientists, among them Dr. Charles Code, Dr. Edward Lambert, and Dr. E. J. Baldes in creating the first civilian human centrifuge in the United States and the testing procedures to assay the reactions of the human organism under high G-forces. Strikingly Drs. Code, Wood, and Lambert always insisted that any test, procedure or experiment to be carried out in the centrifuge or inside aircraft would be tested first on themselves to ascertain safety, as the research was in uncharted physiological territory. The first paradigm of the Hippocratic Oath "First do no harm" was of paramount importance to the research team and Dr. Wood. As a result of that principled stance on research, Dr. Wood and his team have entered the annals of experimental acceleration physiology as the subjects with the most cumulative time in G-induced loss of consciousness or in blackout of any in the literature. During the period of 1942 to 1945, Dr. Wood experienced 299 +Gz exposures with complete light loss (CLL) equal to 15 min of no perfusion at head level; he spent 226.3 min at +4Gz and 43.6 min at forces of +6Gz or above; and he suffered numerous instances of G-LOC. The work was carried out under great secrecy and resulted in new protective maneuvers that are still in use by fighter pilots today (Anti-G straining maneuver, M-1, or Mayo-1) affording up to 2 to 3 +Gz of protection. In addition to that and in collaboration with David Clark, the team produced one of the first practical G-valves and single pressure five bladder G-suits that were later used in World War II. The very suit design and principles of G-protection created by the team of Dr. Wood and David Clark continues to serve in modern fighter aircraft.

Dr. Wood was elected to the staff of the

Mayo Clinic in Physiology in 1946. The experimental work on the centrifuge allowed Dr. Wood and his team to gain profound understanding and appreciation of cardiovascular physiology via the use of strain gauge manometry, as well as ear piece oximetry, and later cuvette oximetry. These techniques, including the later development of dye dilution curves (working with Dr. I. J. Fox in the creation of cardiogreen dye), allowed for the further development of real time cardiac catheterization techniques. These were invaluable in describing and delineating complex congenital heart disease, thus allowing for better diagnosis and treatment decisions to be made by the Mayo clinicians working with Dr. Wood's team, who early on used equipment derived directly from the centrifuge system. Technology from the centrifuge system was modified to allow for real time intravascular pressure monitoring on multi-channel recorders thus, along with an improved Gibbon heart lung machine, leading to the successful monitoring system that served in the first successful open heart surgery at Mayo Clinic by Dr. J. Kirklin in 1955.

Dr. Wood headed Mayo Clinic's Cardiovascular Laboratory and became a Career Investigator of the American Heart Association in 1962. Countless fellows, visiting scientists and clinicians came to study in his lab and learn the new techniques. He advanced through the academic ranks to become a full Professor in the Mayo Graduate School of Medicine in 1951 and in the Mayo Medical School in 1973. He was chairman of the Biodynamics Research Unit from 1975 to 1976. He has been a prolific contributor to the literature in Medicine, Aerospace Medicine, Cardiology, Physiology and Video densitometry; and he pioneered the technology for advanced X-ray imagery of the heart, lungs and circulation leading to the development of the Dynamic Spatial Reconstructor, a 3D real time X-ray based computed tomography machine, which, 35 years later, has matured into the Cardiac X-Ray CT scanner technology recently introduced by several companies.

Throughout the 1960s, Dr. Wood worked on a number of NASA and Air Force sponsored projects. In the early 1960s, under NASA sponsorship, he and his team tested prototypes of the astronaut couches for Project Mercury on Mayo's human centrifuge. During the late 1960s Dr. Wood was a member of the Air Force's Manned Orbiting Laboratory Review Committee.

See WOOD, p. 510.

**Members, please visit our website:  
[www.asma.org](http://www.asma.org)**

Log into the Members Only page, where you can:  
• update your address, phone number, and e-mail address  
• access the Blue Journal online  
• view Association news  
• renew your membership  
• view the Job Fair and online classifieds  
-- and much more!

### MEMBERSHIP RATES FOR 2009

|                             |         |
|-----------------------------|---------|
| Regular Membership          | \$255   |
| Student/Resident            | \$125   |
| Member & Spouse (1 journal) | \$310   |
| 3-Year Membership           | \$580   |
| Life Membership             | \$3,825 |
| Technician                  | \$130   |

During the late 1960s and early 1970s, Wood and his team employed Mayo's human centrifuge to conduct the first demonstrations in experimental animals of the use of "liquid breathing" of fluorocarbon to maintain adequate blood oxygen and carbon dioxide levels even during 15-20 minute exposures to very high acceleration levels of + 8-9 Gz (a NASA-sponsored project, with a view of protecting astronauts from lung damage during emergency high-G re-entry maneuvers). In the early 1970s Wood and his team consulted to the Air Force on the best positioning of the pilot in the then prototype F-16 and F-18 fighters to minimize the risk of G-LOC. Dr. Wood continued to study G-LOC problems, including consultations on the designs of the Combat Edge and ATAGS G-Suits. Mitigation of the G-LOC problem continued to occupy a large amount of his efforts throughout the 1980s and 1990s. He worked steadily on these problems, always in communication with Air Force, Navy, NASA. He spent time working on the Canadian human centrifuge at DCIEM in Toronto in 1989. He mentored Mayo Aerospace Medicine staff members working on comparative tests of standard G-suits versus new hydrostatic G-suits until the age of 90 and beyond. During his career he won many Air Force and NASA awards for his innovative approach to study of the acceleration induced incapacitation and many other problems of interest to the operational high performance environment.

Dr. Wood published over 700 articles and numerous book chapters, including many seminal works in the Aerospace medical Association's journal; for example:

Wood EH, Lambert EH. Some Factors Which Influence the Protection Afforded by Pneumatic Anti-G Suits. *J. Aviat. Med.* June, 1952

Lindberg EF, Sutterer WF, Marshall HW, Headley RN, Wood EH. Measurement of Cardiac Output During Headward Acceleration Using the Dye-Dilution Technique. *Aerospace Med.* October, 1960

Lindberg EF, Marshall HW, Sutterer WF, McGuire TF, Wood EH. Studies of Cardiac Output and Circulatory Pressures in Human Beings During Forward Acceleration. *Aerospace Med.* January, 1962

Nolan AC, Marshall HW, Cronin L, Sutterer WF, Wood EH. Decreases in Arterial Oxygen Saturation and Associated Changes in Pressures and Roentgenographic Appearance of the Thorax During Forward (+Gx) Acceleration. *Aerospace Med.* September, 1963.

He continued to write research articles and opinions published in *Aviation, Space and Environmental Medicine* throughout his long career. He gave the Aerospace Medical Association's 1967 Harry G. Armstrong Lecture: "Some Effects of Gravitational and Inertial Forces on the Cardiopulmonary System."

In addition, he authored, "German Aviation Medicine in World War II : Volume I & II," Washington, DC: US Government Printing Office, 1951; and "Evolution of Anti G-Suits, their limitations and alternative methods for avoidance of G-LOC, Volume I & II," DARPA, Mayo Foundation, May 1990, Special Purpose Processor Group.

He received the Aerospace Medical Association's 1963 Eric Liljencrantz Award

for basic research into the problems of acceleration and altitude, and the 1983 Lyster Award for outstanding achievement in aerospace medicine. He also received the 2004 Strughold Award from the Space Medicine Association, a constituent of AsMA.

He received numerous other academic distinctions during his career, including the status of the American Heart Association's "Career Investigator" in 1962; 53rd president of the American Physiological Society from 1980-1981 and President of the Federation of American Societies of Experimental Biology (FASEB); a senior scientist award from the German Alexander von Humboldt Foundation; and in 1982 he received the John Phillips Memorial Award of the American College of Physicians. He was a fellow of the National Research Council and the Aerospace Medical Association. A symposium honored his official retirement from Mayo in 1982. One recent distinction particularly pleased his children: In 2002, former Mayo fellow Peter Osypka, who founded a successful medical instrumentation company based on his work in Dr. Wood's lab, dedicated "Earl H. Wood Strasse" in Rheinfelden, Germany.

His legacy will live on in his numerous fundamental contributions to the field of physiology, operational Aerospace Medicine and most importantly through the countless trainees and students who have had the privilege to work with him and get to know him as a world class researcher, teacher, and wonderful family man and human being.

Hunting trips interspersed throughout the course of the year would provide welcome respite and recreation through his passion for the outdoors and time to spend together with his large, closely knit family, either at the farm in the country few miles from Rochester or at the Lake home in Mankato, where family and friends would gather and spend many memorable vacation times together.

The combination of scientific brilliance, limitless energy, humility and genuine appreciation and dedication with heartfelt care to his family, trainees, colleagues and patients alike made Earl Wood the wonderful human being that he was. We will all miss him terribly, yet we are all grateful for having been touched by his influence in our lives.

## Anchard F. Zeller

Anchard F. Zeller, Ph.D., who was a Staff Psychologist at the Life Sciences Division of the Air Force Inspection and Safety Center at Norton AFB, CA, where he served for over 27 years, died recently. He earned his B.S.

and M.A. degrees in 1941 and 1942, respectively, from the University of New Mexico, where he also served as an instructor in both the mathematics and psychology departments. He later received his Ph.D. from Johns Hopkins University and then

served as an Associate Professor of Psychology at the University of Tulsa. He began his career in the Air Force in 1952.

Dr. Zeller was a member of the American Psychological Association, the American Association for the Advancement of Science,

and was a Fellow of the Aerospace Medical Association (AsMA). He received the Raymond F. Longacre Award from AsMA in 1965 for "his outstanding achievements and accomplishments in the area of the psychiatric aspects and human factors considerations in aerospace programs." He was also awarded the Harry G. Moseley Award from AsMA in 1979 for his accomplishments in the psychiatric and psychological aspects of aerospace medicine. The Air Force gave him the USAF Meritorious Civilian Service Medal in 1974 for the work he did in the human factors aspects of flight safety.

Dr. Zeller had over 40 publications to his name and was a certified psychologist with the state of California. His thesis, "An Experimental Analogue of Repression," has been reprinted both as a series and as part of a text and has been cited as a classic example of an experimental approach to an intangible clinical subject. His series on pilot age and experience was published in Aviation, Space, and Environmental Medicine, and other journals have published his studies on human factors and safety. Dr. Zeller was also a frequent speaker at conferences and was the technical advisor for a number of safety films.

## Obituary Listing

AsMA recently learned that Alan D. Fair, M.B.Ch.B., O.B.E., has died. Born in 1921 in New Zealand, Dr. Fair earned his M.B.Ch.B. at the University of New Zealand in 1945. He earned a Diploma in Child Health at the Institute of Child Health in London in 1949. He served in the New Zealand Army as a Captain before moving to Japan, where he worked at the Tokyo Medical and Surgical Clinic. He was a member of the Aerospace Medical Association for over 40 years, and also belonged to the British Medical Association and the Japan Medical Association.

## Aviation Medicine Scholarship

The International Academy of Aviation and Space Medicine has a well-established Scholarship Program, the aims of which are to enable young physicians who are starting on a career in aerospace medicine to either attend a formal course of instruction in aerospace medicine or to work in a recognized aerospace medicine training or research institute for instruction, and for research experience in the discipline. This scholarship is for \$15,000 US. The deadline for application for the current scholarship is June 30, 2009.

**Scholarship Application Form -** Individuals wishing to apply for this Scholarship may print a copy of the Scholarship Application Form in English or French from the IAASM website at <http://www.iaasm.org>

## INDEX TO ADVERTISERS

**Aerospace Medical Association**

|                               |           |
|-------------------------------|-----------|
| Corporate Members .....       | .ii       |
| Information for Authors ..... | Cover III |
| ETC .....                     | Cover IV  |
| JAA AME Courses .....         | .507      |