

President's Page

I am writing this page while recovering from rotator cuff surgery of my right arm. Until now, I did not know how difficult it is to perform one's daily life activities without use of the dominant hand. Learning to feed, groom, and dress myself using my left hand has been an interesting and somewhat frustrating experience. Being able to type this page using my left hand only has proven to be particularly challenging.

It is with some sadness that I am writing my 12th and last President's Page. It was one year ago when I had the great honor to become President of the Aerospace Medical Association. Without a doubt, this past year has been a memorable experience. As I expected, it has represented a very significant and satisfying highlight in my aerospace medicine career.

In my first President's Page I expressed a personal commitment to dedicate my efforts to support the long-term goals and needs of our organization. I am very pleased to report that with the valuable support of the Executive Committee and Council, we completed the development and initiated the successful implementation of our AsMA Strategic and Business Plans. These detailed plans provide long-term goals, describe specific milestones, and assign clear roles and responsibilities to guide our path into the future, by promoting our continued growth and relevance as a world-leading multidisciplinary scientific organization. A copy of these plans can be found in the February 2004 issue of our ASEM journal. I now leave these ambitious plans in the very capable hands of our incoming President, Dr. Michael Bagshaw. Thanks to Dr. Bagshaw's professionalism, dedication, and enthusiasm, there will be a seamless transition of senior leadership that will ensure the continuing improvement of our Association.

As you may recall, during my opening remarks at the 2004 Honors Night in Anchorage, Alaska, I made a promise to develop and implement a formal mentorship program in support of our students and residents who represent the future leadership of our Association. I am happy to inform you that Dr. Jennings (Vice-President for Education and Research) successfully led the development of this mentorship program in coordination with the Education and Training Committee, the AsMA Fellows Group, the AsMA Associate Fellows Group, and AMSRO. This program will be implemented through our AsMA Web site to facilitate the linkage between mentors and mentees. To promote the participation of mentors in this program, the Executive Committee approved the establishment of a new "Mentor of the Year Award" and tasked the Awards Committee to develop the eligibility criteria to nominate candidates for such an award. The final proposal will be submitted to Council for vote.

I take this opportunity to express my most sincere appreciation to the following Executive Committee members for their hard-work in support of our Association:



Melchor J. Antuñano, M.D., M.S.

Michael Bagshaw, M.D. (President Elect); Richard Jennings, M.D. (Vice-President for Education and Research); Peach Taylor, M.D. (Vice-President for Member Services); John "Jack" Hastings, M.D. (Vice-President for Representation and Advocacy); Andrew Bellenkes, Ph.D. (Vice-President for International Activities); Russell Rayman, M.D. (Executive Director); and Members-at-Large Susan Richardson, M.S., Robert Weien, M.D., and Dwight Holland, Ph.D. Some of the issues discussed, debated, and resolved by the Executive Committee this year were very difficult, and, at times, even controversial. However, the team was able to resolve them effectively and efficiently. Their assistance was essential, and their commitment to excellence must be publicly recognized.

I also wish to recognize all AsMA Standing and Meeting Committee chairs and members for their voluntary support in undertaking a variety of assignments and tasks that are essential to accomplishing the goals and objectives of our new strategic and business plans. In addition, I want to thank the entire staff at the Home Office for their handling of the daily administrative activities of our Association.

I would like to reiterate that as members of AsMA you represent our most valuable and important organizational asset. Our future depends on your willingness to maintain your membership, as well as your active involvement. There are many different ways to support AsMA, such as assisting in the recruitment of new members, nominating colleagues to be recognized for their accomplishments through our awards program, promptly paying your annual dues, volunteering to participate in educational outreach activities to promote our scientific discipline, getting involved in mentoring the next generation of colleagues, proposing resolutions and position papers that address issues of relevance to our profession and our Association, submitting manuscripts for publication in the ASEM journal, submitting abstracts for presentation during the annual scientific

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meeting, actively participating in the business meeting, exercising your voting privileges, and performing volunteer work in any of the various committees.

He did it! Steve Fossett successfully completed his solo non-stop around-the-world flight aboard the GlobalFlyer at an average ground speed of 297 knots. This non-refueled record-setting flight lasted 67 hours, 1 minute, and 46 seconds. Mr. Fossett safely landed his airplane at the same airport where he took off in Salina, KS. By the way, NASA's Low Power Transceiver (LPT) was used aboard GlobalFlyer to allow the public around the world to witness this historical flight through a live video link. LPT is the transceiver component of the advanced experimental Tracking and Data Relay Satellite System that is used to provide uninterrupted communications and data relay between space vehicles and ground control. Mr. Fossett also borrowed NASA's Personal Cabin Pressure Monitor to alert him (through vibration) in case of an unexpected decrease in cabin pressure. GlobalFlyer, SpaceShipOne, and White Knight will be displayed to the public this July at the Experimental Aircraft Association AirVenture in Oshkosh, WI.

Aera Corporation of Temeculah, CA is the latest entry to the manned commercial space transportation industry with a space vehicle named "Altairis". Aera signed a commercial space operations support agreement (access to launch facilities and launch support services) with the USAF to allow the vertical rocket-powered launch and horizontal parafoil-guided landing of Altairis at Cape Canaveral in Florida. This vehicle is designed to carry one mission commander and six paying passengers on a computer-controlled suborbital flight profile lasting 40 minutes.

Did you know that NASA is planning to decrease the total budget available for aeronautics research in order to support space projects including space station operations, space shuttle replacement, and missions to the moon and Mars? This is unfortunate for several projects involving the development of new aeronautics technologies and materials, as well as aviation human factors research. The remaining aeronautics research will be focused on air traffic control, airport noise, and efficiency projects that support the Joint Planning and Development Office (JPDO) priorities. The purpose of the JPDO was previously described in my President's Page published in the November 2004 issue of the ASEM journal.

The FAA has launched an on-line "Human Factors Awareness Course" for FAA employees and the general public. The purpose of this course is to introduce human factors concepts and methods with the goal of

fostering an understanding of the role and contribution of human factors in system design, development, and implementation. While targeted for those who support FAA system acquisitions, the course is open to anyone who is interested in this topic. The training is available online and more in-depth information on specific FAA human factors programs and research can be found at <http://www.hf.faa.gov>. Guidance on the role of human factors in FAA acquisition programs can be also be found on that web site.

AsMA will continue to confront and address long-standing, as well as, new emerging technological and operational challenges in aviation, space and environmental medicine (including all allied disciplines) covering a variety of scientific, academic, professional, political, and public service issues including:

- International harmonization of medical certification standards for aerospace personnel;
- International standardization of medical care capabilities (providers, equipment and procedures) aboard commercial air transports;
- International standardization of programs to promote and/or ensure the safety, health and comfort of aerospace passengers;
- National and international cooperation in basic and applied research programs in aerospace medicine and allied disciplines to optimize the effective and efficient use of limited research resources;
- International standardization of basic and advanced training programs in aerospace medicine and allied disciplines for aerospace medicine specialists, aviation medical examiners, flight surgeons, flight nurses, aerospace physiologists, aerospace psychologists, aerospace human factors specialists, aviation accident investigators, etc.;
- Promotion of a human-centered approach to the design, development, and implementation of new aerospace technologies;
- Promotion of appropriate public health approaches to reduce or eliminate the transmission of communicable diseases involving regional and global air transportation systems;
- Promotion of preventive and remedial approaches to protect the health and safety of all aviation personnel and users in response to deliberate use of nuclear, biological and/or chemical agents involving national and international air transportation systems.

In closing, even though my Presidency is coming to an end, I look forward to other opportunities to continue working with you in support of our Association.

I deeply appreciate your trust and confidence in giving me the opportunity to lead our Association. It was a great year!

Medical News

Executive Director's Column



Rayman

AsMA Listing of Experts

When I first took this position some years ago, I noted that many of our members would call me asking if I could refer them to other members who had expertise in our various disciplines. For example, I remember in particular many calls coming in asking for names of AsMA members with expertise in acceleration. Because of this, we sent out a letter about 10 years ago asking for members to volunteer to serve as consultants so we could place their names on a list to facilitate referrals. Over the years, due to retirements, it is now time to update the list.

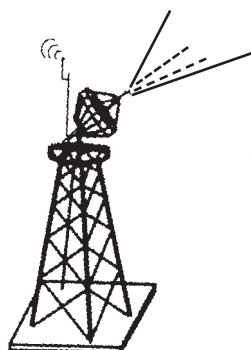
Consequently, a letter was sent to all members asking if they would be interested in volunteering their services and to return a form to me with this information. I was extremely gratified, if not surprised, by the incredibly large number of returns that I have received. The form listed 34 areas of expertise from which the volunteer expert could choose. In addition, a number of our members volunteered their services in areas not on the list. At this time, we have processed all the forms and the updated list of experts will soon appear on our new website. It will be in the Members Only section, restricting access to only members in good standing.

Since this was done on a voluntary basis, AsMA has no way to authenticate whether an individual is truly an expert as indicated on his/her form. Therefore, I placed a disclaimer on the website to the effect that individuals are self-identified experts and that AsMA cannot take responsibility.

In any event, once the list is available and you have any questions or need assistance in any given area, you merely have to go to the Members Only section and locate the names in your area of interest, and then consult the membership database (also in the Members Only section) and make contact accordingly.

I hope this listing of experts will be useful to all of our members.

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AND pay AsMA an
additional \$20 fee.



Science & Technology Watch

Cervical Spine Injury Prediction Model

Barry S. Shender, Ph.D., Senior Scientist, Naval Air Warfare Center Aircraft Division, Patuxent River, MD

Injury tolerance of the cervical spine during exposures to acceleration forces associated with maneuvering flight, repeated shock, impact, ejection, and crash is not clearly understood. Specifically, the effects of added head weight, center-of-gravity (CG) location, gender, work/rest cycle, cervical orientation, and behavior all affect the risk of injury. Several U.S. Naval and joint DoD development programs feature head-supported devices (HMD), which are being fielded without applicable objective injury risk criteria. This is due to specific gaps in our knowledge of spinal injury in aerospace environments, since injury criteria are principally based on automotive data derived from individuals without head-gear. The AsMA Science and Technology Committee is sponsoring a panel at the 2005 Kansas City Scientific Meeting on Monday, May 9, to provide an update on a multidisciplinary effort supported by the Office of Naval Research led by the Naval Air Warfare Center Aircraft Division to quantitatively determine the risk of injury: 1) to the human head/neck resulting from acceleration exposures during maneuvering flight; and 2) from multi-axial spinal injury during repeated shock, high speed ejection, and crash. The goal of this effort is to comprehensively define spinal injury thresholds for men and women and develop guidelines for HMD development, head-borne protection, and protective restraint systems (e.g., crash-worthy seating, ejection seat system design) that accommodate the expanded naval population. The approach is to: 1) define the mechanical characteristics of the cervical vertebrae, discs, ligaments, and muscles; 2) use that information to develop an anatomically-based parameterized probabilistic spinal injury prediction model; 3) predict the effects of head-borne weight and CG on injury risk to men and women; and 4) develop technologies that mitigate injury during flight and ejection/crash. This effort is an integral part of Defense Technology Objective JE.22 (Neck Protection with Advanced Helmet and Vehicle Systems).

The panel will provide a review of our efforts to determine physical properties and characteristics of the neck. Researchers from the Medical College of Wisconsin are determining the mechanical properties of the cervical vertebrae and are developing a large unique set of spinal quantitative computed tomography (QCT) data from normal men and women. This information is used to provide geometric parameters and trabecular bone mineral density (BMD) data necessary to build the anatomic structure of the model. QCT scans include portions of the cervical (C2-C7), thoracic (T1), and lumbar (L2-L4) spines. One unexpected finding was that there are significant differences among different regions of the vertebral column for women, with the cervical spine demonstrating higher densities than the other regions. In general, there was a decreasing tendency in the mean BMD from the neck to the low back. Mean BMD were 260.8, 206.9, and 179.7 mg/cc for C2-C7, T1, and L2-L4 groups, respectively.

A presentation by the Center for Applied Biomechanics (CAB) at the University of Virginia will outline the details of its efforts to describe the properties of soft cervical spinal tissues. CAB has conducted a series of studies to characterize the sub-failure and failure characteristics of male and female cervical ligaments. Injury risk functions for the anterior longitudinal ligament (ALL), posterior longitudinal ligament (PLL), and ligamentum flavum (LF) were developed using a quasi-linear viscoelastic theory. Based on these studies, the peak forces corresponding to a 50% probability of injury to the PLL, ALL, and LF were 375 N, 275 N, and 195 N, respectively.

Southwest Research Institute is currently developing an anatomically and kinematically correct finite element model of the cervical spine that accounts for uncertainties in geometry, material properties, loading, and boundary conditions. Model construction began with a parametric representation of the C5-C6 motion segment. The parametric nature of the model allows different statistical populations (e.g., male or female, young or old, etc.) to be easily modeled and accounts for inherent variations within a given population. The statistical model parameters are characterized using the QCT image data provides information needed to characterize probability density functions for all of the model parameters. Ligament constitutive parameters were estimated from the CAB data using LS-DYNA3D and a nonlinear optimization procedure. A C5-C6 motion segment model was constructed and validated for quasi-static flexion, extension, and compression-flexion loadings. Currently, the model has been expanded to include the C2-C7 column.

In the final presentation of the panel, the discussion shifts from predicting to mitigating injury. The U.S. Navy is interested in reducing head/neck loads during maneuvering acceleration, high-speed ejection, and during helicopter impact. One approach that is under

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investigation is a modification of the racing car Helmet And Neck Support (HANS) device for use in aviation. The Aircrew Integrated Restraint HANS (AIR-HANS) accommodates the greater range of motion and field of view required in aircraft cockpits as compared to racecars. AIR-HANS will be integrated into helicopter (HGU-84/P helmet and AIRSAVE vest) and tactical (HGU-68/P helmet and PCU-56/P parachute harness) equipment. The preliminary AIR-HANS design has been completed and form-fit checks were conducted in an F/A-18E cockpit. Hubbard/Downing, the HANS manufacturer, will participate in the fabrication and testing of the modified device.

The AsMA Science and Technology Committee provides this Science and Technology Watch Column as a forum to introduce and discuss a variety of topics involving all aspects of civil and military aerospace medicine. The Watch can accommodate up to three columns of text, which may include a figure or picture to illustrate your concept. Please send your submissions via e-mail to: Len.Goodman@drdc-rddc.gc.ca.

AsMA offers a new member service: Automatic debit for payment of dues

Instructions for "Yearly Bank Debit" by Check

1. To establish an automatic debit, Member must contact the AsMA Home Office at 703-739-2240 Ext. 106 or Ext. 107, to obtain our Bank information (Bank name, Account number, Routing number.)
2. Member must initiate the automatic debit of their annual membership with their own Bank and must inform their Bank of the exact payment amount. The debit should occur prior to the membership expiration date.

3. The Association's Bank will issue a credit memo when payment is submitted.

4. As dues increase, it will be the member's responsibility to contact their own Bank to include the increase in the annual membership fee.

Instructions for "Yearly Credit Card Payment"

Member must contact the Home Office by email, fax, or mail with their credit card number and expiration date, and amount to charge, signature and authorization to make the yearly charge.

As the annual dues increase, the member will need to send authorization to charge the new dues rate to their card.

NOTE: It will be totally up to each member to initiate the above procedures by contacting the Home Office.

MEETINGS CALENDAR 2005

May 21-28, 2005, Dominica. The 30th Annual Dive Medicine Conference will be held by the International Society of Aquatic Medicine (ISAM). For more information, contact ISAM, 6240 Turtle Hall Dr., Wilmington, NC 28409; (910) 452-1452; FAX (910) 799-5209; or visit www.diving-docs.org.

May 22-26, 2005, Graz, Austria. 15th IAA Humans in Space Symposium. For more information, visit www.uni-graz.at/space2005.

May 19-22, 2005, Washington, DC. National Space Society's 2005 Annual International Space Development Conference (ISDC) "Your Ticket to Space". NSS-ISDC 2005, 1620 I Street NW, #615, Washington, DC 20006; (202) 429-1600; FAX: (202) 463-8497; E-mail: nsshq@nss.org; www.nss.org

June 1-2, 2005, Washington, DC. The 2005 Defense Medical & Procurement Conference. Info: www.homelanddefense-journal.com; Homeland Defense Journal, Inc., c/o David Dickson, 4301 Wilson Blvd., Ste. 1003, Arlington, VA 22203; (703) 807-2758.

June 5-11, 2005, St. Petersburg, Russia. 36th World Congress on Military Medicine. Sponsor: Russian Ministry of Defence. Info: Ivan Kholikov, tel. (095) 696-1940; mobile 8-926-202-7606; <http://www.congress-ph.ru/eng>

June 13-July 26, 2005, Moscow, Russia. Fifth International Space Medicine Summer School, a joint project of the Lomonosov Moscow State University, the Institute for Biomedical Problems, and Contemporary Educational Programmes. A 2-week program for those in biomedicine, natural sciences,

engineering, and related fields. For more information, go to www.cep.ru.

June 19, 2005, Las Vegas, NV. Diabetes and Diving--1-day CME Workshop co-sponsored by UHMS and DAN. To register: www.uhms.org

July 22-27, 2005, Las Vegas, NV. 11th International Conference on Human-Computer Interaction. Further info: HCI International 2005, School of Industrial Engineering, Purdue University, Grissom Hall, 315 N. Grant St., West Lafayette, IN 47907; hci2005.engr.wisc.edu; www.hci-international.org

July 25-28, 2005, Boulder, CO. Cryogenic Engineering Training Short Course. www.cryo.co.com.

September 15-18, 2005, Gold Coast, Queensland, Australia. Conjoint Meeting of the Australasian Society of Aerospace Medicine (ASAM) and the Asia Pacific Federation of Aerospace Medical Associations (APFAMA). The Annual Scientific Meeting of ASAM, together with the 5th Asia Pacific Congress of Aerospace Medicine (APCASM). Contact: Anne Fleming, ASAM Secretariat, +61 3 98991686. fleminga@bigpond.net.au; www.asam.org.au.

October 19-22, 2005, Playa del Carmen, Q.R., Mexico. XXII International Meeting of Aerospace Medicine. Sponsor: Mexican Association of Aviation Medicine, A.C. General Theme: Advances in Clinical Aerospace Medicine. Info: Luis A. Amezcua G., M.D., Tel./Fax: (52-55) 55-15-68-84; lamezcua@att.net.mx

October 24-26, 2005, Salt Lake City, UT. SAFE Association 43rd Annual Symposium. Info: Jeani Benton 541-895-3012; safe@peak.org; www.safeassociation.com.

Attention! March Issue is Meeting Program!

This year, your March issue of *Aviation, Space, and Environmental Medicine* is the Meeting Program. It contains the abstracts accepted for presentation at the meeting, plus the schedule and much more! If you make notes in it, you might want to bring it along with you to the meeting. Additional copies will be available in Kansas City.

The March Supplement, "Tropical Medicine and Travel Medicine," sponsored by the German Academy of Aviation and Travel Medicine, Frankfurt, Germany, is now available for free on the Ingenta journal website: www.ingentaconnect.com.

This publication is available in microform from ProQuest

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AsMA Future Meetings

May 8-12, 2005
Kansas City, MO
Hyatt Regency Crown Center

May 14-18, 2006
Caribe Royale Hotel
Orlando, FL

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

ASMA HAS A NEW WEBSITE!

AsMA's new web site is now online with many new features! Please check it out!

- Brand new Members Only area
- Members can update address and phone number online and much more!
- Announcement Updates
- New journal page
- Mentorship Program signup

WWW.ASMA.ORG

This Month in Aerospace Medicine History-- May 2005

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

Seventy-Five Years Ago

Physical fitness, pilot error and mishap rates (Medical Corps, U.S. Army): "The general subject of physical fitness, together with other factors which must be taken into account, will be discussed in their bearing on aircraft accidents. Since the beginnings of Aviation there had been investigations of aircraft accidents. Conclusions, however, had lacked constructive value because different organizations were using different classifications and definitions. In February, 1928, the Assistant Secretaries for Aeronautics in the Departments of War, Navy, and Commerce requested the National Advisory Committee for Aeronautics to prepare an outline for use by the various governmental agencies in the study of these accidents. A chart was prepared which now is used in each analysis - an aircraft accident being defined as an occurrence which takes place while an aircraft is being operated as such and as a result of which a person or persons are injured or killed, or the aircraft receives appreciable or marked damage through the forces of external contact or through fire. The analyses show that about 60 percent of aircraft accidents are due to the pilot, usually not because of physical defect, but of fault somewhere along his higher levels. The percentages are: 59 per cent in Commercial flying; 63 per cent in Army flying; 74 per cent in Navy flying" (3).

New instrument for testing for diplopia (Minneapolis, MN): "This piece of apparatus was devised to facilitate the test of ocular muscle balance with the red glass, as required by the Department of Commerce, Aeronautics Branch. The single red glass ordinarily held before one eye to test patients requires the active and honest cooperation of the subject, since any one of average intelligence quickly surmised what it is all about. This necessitates confusion prisms. The trial frame assembly is a rather cumbersome and not altogether satisfactory procedure.

"For this device the frame of the old confirmation test is employed. Instead of the usual plus and minus lenses, two red glasses are substituted at one end (e.g. before the right eye) and at the other end (before the left eye) a 2 prism, base down or up, is employed paired with a plano glass, preferably tinted to counter-balance in a measure the obscuring effect of the red (see Fig. 1).

"By switching off the spot light and raising the device above the subject's line of vision,

the prism and plano can be instantly interchanged by rotating the handle. If the test is carried out in a room sufficiently dark that the subject cannot see the source of the spot light, either when lighted or extinguished (controlled by a switch at the testing chair), it is possible to confuse any applicant attempting to disguise his diplopia, without additional apparatus" (2).

Fifty Years Ago

Pressure suit for high-altitude flight: "The pressure suit, for wear in all flights above 45,000 feet altitude, is simple in principle. The helmet delivers the oxygen to the lungs under pressure, the same as in pressure breathing. Counter pressure is applied to chest, abdomen, arms and legs to equalize internal and external pressure and hence keep your blood circulation from stagnating and keep you from going into shock. This would quickly take place if the pressure developed, when the suit is inflated, were applied within the lungs alone. At 63,000 feet 'the Armstrong line' (named for General Harry Armstrong who forecast it on a theoretical basis and later proved it with animals), is reached where the blood vaporizes without protection because the air pressure equals the vapor pressure of water at body temperature" (1).

First transcontinental round trip in one day: The first round trip flight across the United States in less than one day, from Los Angeles to New York and back, was completed in eleven hours, thirty-three minutes and twenty-seven seconds on May 21, 1955. The 5,085 mile flight, in an F-86 Sabrejet, was piloted by Lieutenant John M. Conroy (6).

Twenty-five Years Ago

Measurement of visual behavior in pilots (Center D'Etudes et de Recherches de Medecine Aerospatiale, Paris Armees, France): "Before providing the new single-seat fighter aircraft with selective visual information display systems, it is necessary to conduct new studies of the visual behavior of pilots flying these aircraft in order to determine the nature of information to be displayed. The authors describe a modified NAC Eye Mark recorder which can be used in tight spaces without any interfering light source and give an example of its use in an experiment conducted in a Mirage III R training simulator. The reported experiment was designed to analyze the visual behavior of 12 pilots of four different qualification levels who flew a ground control approach (GCA) test each day for five consecutive days. The results show that the pilot's visual behavior is stable, both on an intra- and inter-individual basis. In addition, it is possible to classify the control panel instruments as a function of the number of times and length of time they are checked" (4).

Predicting burn injuries from ejection seat

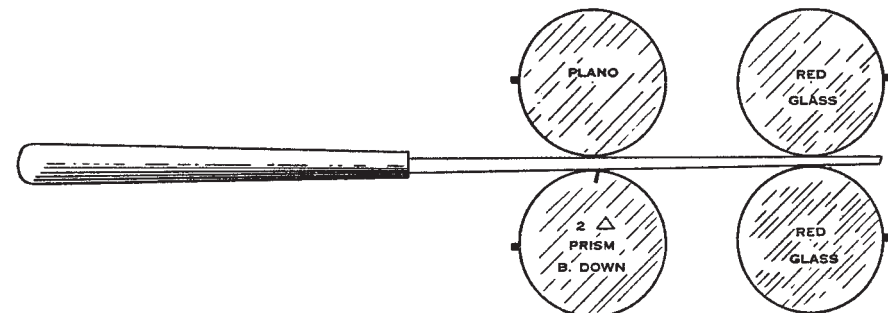


Fig. 1. The diplopia-testing device described in the accompanying article. This is the actual sketch from the original in the *Journal of Aviation Medicine*.

rockets (Naval Air Development Center, Warminster, PA): "By use of miniature rocket engines, the burn hazard posed by exposure to ejection seat rocket plume flames was determined in the anesthetized rat. A reference chart is provided for predicting equivalent effects in human skin based on extrapolation of earlier direct measurements of heat input for conjunction with thermocouple temperature measurements of the plume environment for design and modification of escape seat system to avoid thermal injury on ejection from multi-place aircraft" (5).

First nonstop transcontinental balloon flight: The first nonstop balloon flight across the United States concluded on May 12, 1980. Maxie Anderson and his son, Kris, piloted their helium balloon, Kitty Hawk, from Fort Baker, CA to just outside Matane, Quebec in about 4 days. The flight was at the time also the record for longest overland voyage in a balloon (6).

REFERENCES

1. Henderson AM. USAF combat crew. 1955; 5:13.
2. Herbolzheimer AJ. A new instrument for testing for diplopia. *J Aviat Med* 1930; 1:102.
3. Longacre RF. Physical fitness for airplane pilot duty. *J Aviat Med* 1930; 1:64-80.
4. Papin JP, Naureils P, Santucci G. Pickup of visual information by the pilot during a ground control approach in a fighter aircraft simulator. *Aviat Space Environ Med* 1980; 51:463-9.
5. Stoll AM, Piergallini JR, Chianta MA. Rocket plume burn hazard. *Aviat Space Environ Med* 1980; 51:480-4.
6. www.infoplease.com; accessed March 2002.

Embry-Riddle Summer Camps Have Aviation Theme

Daytona Beach, FL, March 16, 2005 -- From building a mock space station to learning to fly, teen-agers will have a blast at the Summer Academy operated by Embry-Riddle Aeronautical University at its Daytona Beach campus.

The Summer Academy, which will run from June 13 to Aug. 9, offers educational programs for students ages 12-18 who want to learn about aviation and aerospace in a fun, relaxing atmosphere. This year's courses, some of which may be taken for college credit, are Aerospace I, Aerospace II, Aviation Career Exploration, Aviation Discovery for Women, Flight Exploration, Generations, and SunFlight. Application is required a month before the start date of each camp. Programs include housing in an Embry-Riddle student dormitory, on-campus meals, classroom instruction, and educational materials.

As an example of one program, aspiring astronauts and scientists learn about NASA programs, space shuttle operations, and the history of space flight in Aerospace I. The course fosters a basic understanding of space and space technology through field trips, guest speakers, and classroom lectures. Students design and build two space-station models, one on land and one in a zero-gravity environment. The program runs June 20 to July 13. Tuition is \$3,800.

For registration details and a brochure: Embry-Riddle Aeronautical University, The Summer Academy, 600 S. Clyde Morris Blvd., Daytona Beach, FL 32114-3900; (800) 359-4550; www.erau.edu/summeracademy/.

AEROSPACE PHYSIOLOGY REPORT

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Mentorship--We Need You-- Every One of You!

by Col. Susan Richardson, USAF, BSC

Have you shared your excitement and knowledge of our specialty lately? Mentorship requires two, one willing to ask and the other willing to share. Aerospace Physiology is a unique specialty and critical to safety of aircrew and their passengers. The Aerospace Medical Association provides us an opportunity to review the latest research and share concepts and ideas with our colleagues in a professional setting. But more importantly it is a place to connect with other experts to help answers the questions and solve operational flight problems.

You, as a senior member of AsMA, understand what seems like a mystery to a new member. They need to know what committees, constituents, and affiliates best fit their speciality or area of study. They need to understand the leadership opportunities within the organization. You could share the process for being selected as an Associate Fellow. What is "board certification in aerospace physiology"? Who is eligible and what are the benefits? If you are new or junior member of our organization, I encourage you to seek out the more senior members, and ask for assistance. We need your new ideas and enthusiasm, but more importantly, the aerospace community, our aircrew, and their passengers need the skills of our young scientists.

The Aerospace Medical Association was recently inducted into the Aviation Hall of Fame for the many advancements we have made addressing the human aspects of aerospace operations. Many of our members were pioneers in their fields. However, many challenges still lie ahead as we advance the aeromedical and human factors aspects of the evolving flight environment. As the aerospace community moves toward higher, faster, and remotely-piloted flight, we must have the human science to ensure the safety of aircrew and their passengers. As spaceflight becomes increasingly common, we must be the advocates for the safety of travelers. Mentorship recruits the young scientists to ensure the human science keeps up with the industry.

The Aerospace Medical Association considers mentorship so important that they are formalizing the Mentorship process. You will soon be able to sign up on the AsMA Website to be a Mentor or Mentee. This program is designed to connect our young scientists with world class experts who are experienced in many field of Aerospace Medicine. The AsMA Mentorship Program defines a mentor as "any AsMA member who has experience in a designated sub-

ject area and volunteers to serve...the function of the mentor can include guidance, role-modeling, interpersonal support, provision of feedback regarding academic paths, research, or career decision-making". The mentee is "any AsMA member who is a student, resident, trainee, or member for less than 5 years".

Get connected to the Aerospace Medical Association of the future. Ask for help. Introduce yourself to a new member. Volunteer! Many of our young scientists don't realize they are welcome to the many committee meetings. They need our more senior members to guide them to the professional groups where their input would be valued. Operated entirely by volunteers, the committees, constituent, and affiliate associations never away turn an enthusiastic member. We need you. All of you.

30th Annual Dive Medicine Conference

The International Society of Aquatic Medicine (ISAM) will hold its 30th Annual Conference May 21-28, 2005, at the Fort Young Hotel in Dominica. The conference is a 30-hour Category 1 CME program that offers lectures on diving medicine, forensic science, physiology, hyperbarics, and exploration research. The afternoons are spent in the field conducting underwater exploration.

For further information, contact ISAM, 6240 Turtle Hall Drive, Wilmington, NC 28409; (910) 452-1452; FAX (910) 799-5209; or visit www.divingdocs.org.

Physician

The **National Security Agency (NSA)** is seeking a dynamic, customer-oriented Physician to join a team of health care professionals to provide medical services in a state-of-the-art, travel/operational medicine, ambulatory health care setting at our headquarters facility in Ft. Meade, MD.

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For more information and to apply online, please visit www.nsa.gov and click on **Careers**.

[To apply for this position, click on **Apply Online** and select **View Job Posting/Apply for Job**. Under **Job Categories** select **Occupational Health** and click on the **Search** button. Add **Physician to Job Basket** and click on **Apply for Jobs in Basket**. Follow directions as prompted.]



U.S. citizenship is required. NSA is an equal opportunity employer. All applicants for employment are considered without regard to race, color, religion, sex, national origin, age, marital status, handicap, sexual orientation, or status as a parent.

www.NSA.gov

AsPS Member Benefits

The outstanding network potential and the chance to gain knowledge from the field's top minds.

The opportunity to take part in forums for the integration and utilization of experts in many diverse professional fields. Our members have shared their expertise in multinational and multi-service working groups for altitude effects, acceleration, spatial disorientation, passenger and patient transport, and human factors.

The opportunity to recognize scientific achievement in the field of aerospace physiology. There are three Society awards presented each year.

The chance to contribute to the success and quality of the annual AsMA conference. The Society's Education and Training Day has been one of the most widely attended sessions during the annual conference.

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

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

WING NEWS & NOTES

Send information for publication on this page to:
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Flying High With Dr. Eleanor C. (Connie) Mariano

By Dale Orford

Recently, while visiting with my good friend, Connie, I asked her, "So, Connie, what's it really like to fly with the most powerful leader of the free world?" "Well, Dale," she replied, "Once you have flown Air Force One, first class just doesn't cut it!"

Connie is my personal physician and one of Bob's partners in the Executive Health Program at Mayo Clinic Scottsdale. She is also the former White House Physician and has the distinction of holding the record for the most air miles logged on the President's plane. She has served under three administrations - that of President George Bush, Sr., President Bill Clinton, and President George W. Bush. She also holds the rank of Rear Admiral (Ret) with the US Navy. In addition to her medical practice, she has consulted for the television program "The West Wing."

"It's pure adrenaline!" says, Connie. "Not only do you have to 'work' (you are on 'duty' to take care of the President, his family and all the other passengers on the plane), but you get the thrill of flight and the jet lag of frequent travel. I've told people that 'it's the only way to fly' to cite an old advertising slogan. Being the doctor on Air Force One is better than flying first class since you fly in the medical annex which is in the forward section of the airplane, right beside the President's cabin. If the President needs to see you, he walks aft towards your compartment or if your 'presence is requested' in the president's compartment, you go to his space (while simultaneously checking your pulse first!)."

"The medical space accommodates three large executive style leather reclining seats, and has a fold-up operating room table hidden behind paneled doors. There is a 'mini-pharmacy' in the compartment, sink, refrigerator, two fold-out racks for patient observation, orthopedic splinting equipment, suture kit, trauma equipment and defibrillator, as well as medications you would use in a cardiac arrest. We even have a 'precip' tray (i.e., 'precipitous labor') to deliver a baby in the event of imminent birth - we have to be prepared for any and all emergencies! In case an emergency landing is required, Air Force One has an 'over flight' plan of designated hospitals they would use - this data is top secret. The three seats in the Medical compartment are reserved for the doctor on duty (usually me since I accompanied the President on all of his foreign trips and most of his domestic travel), the nurse, and an extra doctor or medic.

"Although we are prepared for all types of medical emergencies, it is usually the typical 'sick call' type of ailments like colds, ear aches, sprains, and rashes we see most. Depending on the country we had visited, we would often see patients suffering from diarrhea or dehydration. In my 9 years traveling on Air Force One, I only sutured one patient who cut her finger onboard and required stitches before we landed. I also treated two passengers (including one of our White House correspondents)



AIR FORCE ONE--Connie Mariano, former White House Physician, stands in front of the President's plane.

who developed diverticulitis. You cannot hear bowel sounds (nor lung or heart sounds) through your stethoscope on the airplane because of the noise level during flight. It is a challenge and requires full use of your history-taking and clinical assessment skills.

"Flying with the President also requires very strict security - even more so since 9/11. I would leave the White House with the President on Marine One from the South Lawn and fly directly to the tarmac at Andrews Air Force Base. We would then walk over to Air Force One. All of our bags had been screened by Security prior to placement on the plane. The President is the last to board and the first to de-plane. I would follow the President off the plane - it was my job to make sure he didn't trip or fall down the stairs (an occurrence during a previous presidency!)."

"The job does have its perks and the on-board amenities are excellent. The food on-board is delicious and prepared by the Flight Crew in advance. They shop at local U.S. supermarkets in civilian clothes and do not identify where the food will be taken so as to avoid contamination from other sources. All passengers are sent a bill for what they consume - usually about \$8 - \$10 per meal. In addition we can order soda, popcorn, and other 'healthy' snacks while enjoying first run movies shown in each compartment. All you would need to do is look at the list of movie offerings, call up to the operator in the cockpit and request your movie. The Medical Unit even has its own television screen. Music is also available with headphones. Often, I would use my quiet time for catching up on reading, projects, or sleeping. If we didn't have a patient in the fold-out racks, I would sleep there - much better than in a chair!"

"Every trip is an adventure as well as a job to perform. I've visited 100 countries during my military career - most of them while assigned to the White House. I currently hold the 'most frequent flyer' status for presidential physicians for most air-miles logged. We prepare months in advance of a foreign trip, sending a medical team representative to the countries we will visit to look at hospital facilities and meet with the hospital staff. The preparations include the pre-travel advisory in which we ensure all the travelers have their immunizations updated.

"The most challenging trips are to third world countries where the medical care is in-

adequate for our needs (i.e., lacking trauma and advanced medical services). In these cases, we request to bring a separate military airplane carrying a mini-operating suite and surgical team to follow Air Force One. In addition, we take care of the human element--jet lag, diarrhea, upper respiratory infections among all travelers on Air Force One. And when our patients become ill or injured on foreign or domestic trips, it makes headlines! For example, President Bush Sr.'s episode at the Tokyo Summit or Bill Clinton tearing his quadriceps tendon in Florida.

"Usually, I would be able to get a day or two to shop or rest while the other physician traveling with us covers the President. But we are always prepared in case we are needed. During my only day off in Cape Town, South Africa, I was getting ready to take an afternoon nap to combat my jet lag when a Secret Service Agent came to my hotel room telling me he was short of breath - he was in anaphylaxis after an insect bite. Since I had the emergency medical gear in my hotel room (the doctor's room is down the hall from the President's suite), I quickly administered epinephrine, oxygen, and called for help. My luxurious hotel bathroom was soon converted into an emergency suite with the agent lying on the floor, me administering the epinephrine and oxygen, and then the ambulance crew showing up a few minutes later to transport the Agent to hospital.

"It was never dull, and I feel very privileged and honored to have had the opportunity to serve my country as the Physician to the President."



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." A second purpose of the Wing is "to promote sociability among its members and their families." Each year at the scientific meeting, ASMA spouses meet new friends from every corner of the world, sharing in the many cultural experiences and educational opportunities of the host city. Dues are \$20 per year. For further information, contact: Judy Waring, 4127 Kenyon St., Seattle, WA 98136; (206) 933-0884; e-mail: judywaring@comcast.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

James M. Wallace, MB,ChB,DAvMed., Ottawa, Ontario, Canada, has recently retired from the Civil Aviation Medical Branch of Transport Canada Civil Aviation. He was involved in aerospace medicine for 33 years, retiring as Senior Consultant, Policy and Planning.

Severin Muff, M.D., formerly Medical Director, Swiss International Air Lines in Zurich, Switzerland, is now Chief Medical Officer of CAA of Switzerland, Federal Office of Civil Aviation in Bern.

Focus on Members:

Victor B. Maxwell Retires

Dr. Victor B Maxwell, M.B.,Ch.B., M.R.C.G.P. of London, England has announced his resignation from the post of Chairman of the Scientific Sub-Committee of the Association of Aviation Medical Examiners (AAME) and with it, the end of a 50-year career in Clinical Aviation Medicine.



Victor Maxwell graduated from the University of Manchester in December 1953 and after a year in hospital posts, was drafted into the Royal Air Force in 1955 where

he was posted to an RAF Hospital. The work there included routine examination of professional and military pilots and Air Traffic Control Officers and this was his first exposure to what is now known as Aviation Medicine. On leaving the Air Force he continued to work in this field, as well as running a busy practice in Family Medicine in the North of England.

He became a Senior (Class One) Examiner for the British Civil Aviation Authority, and in 1980 was responsible for forming AAME and became its first Chairman. He subsequently served on the Committee and was made Honorary Life Vice President of that organization. He edited "Aviation Medicine Quarterly" during its 5 years of existence.

Education was a major interest and following retirement from full time Family Practice in 1991, Victor moved to London where he remained involved in organization of AAME's Annual Scientific Meeting and was appointed Chairman of the Scientific Sub Committee. Later he helped to organize other Aviation Medicine educational activities. He was forced to give up his practice as an "hands-on" AME at age 70 under JAA rules but remained involved in education.

Twenty-five years ago he became Consultant Adviser in Aviation Medicine to Global Flying Insurance Services of London who underwrite Loss of Licence Insurance for professional pilots.

Following election to Fellowship of the

Aerospace Medical Association 20 years ago, Victor was made an Honorary Fellow two years ago. He says, "this is an honour of which I am particularly proud."

New Members

Al Awadhi, Nabeela Mohd, MBBS, Dubai, UAE
 Biltaji, M. Baker E., Amman, Jordan
 Bland, Elaine S., B.M., Calgary, AB, Canada
 Boyle, Stefan, M.D., Petawawa, ON, Canada
 Brown, Gregory J., M.S., Burnsville, MN
 Castillo, Kerry E., Capt., USAF, NC
 Ciesko, Lisa M., Capt., USAF, MC
 Cohen, Kenneth D., Ph.D., Kennedy Space Center, FL
 Diab, Yamil A., Houston, TX
 Eachempati, Rama G., M.D., Kingston, WA
 Kasin, Jan I., Oslo, Norway
 Kautz, Mary A., Ph.D., Silver Spring, MD
 Louis, David J., Col., USAF/MC, Arlington, VA
 Robinson, Mark O., D.O., Bellevue, NE
 Savage, Erin C., CPT, MC, CA, FS, Fredencton, NB, Canada
 Umana, Edet M., MBBS, MBA, Garki, Abuja, Nigeria
 Veasey, Jack B., M.D., Oromocto, NB, Canada
 Wilbanks, Edd L., Ph.D., Ed.D., Shreveport, LA



International Association of Military Flight Surgeon Pilots Reception/Meeting

Westin Hotel, Pershing North Room
May 11, 2005 6:00 p.m. -midnight

This year we will have a light, buffet-style dinner, and a cash bar for the evening. The light dinner is *gratis* to all members and their guests. During our short Annual Business Meeting, we will be presenting awards to several founding members such as CAPT (Dr) Jim Baker, USN(Ret), and CAPT (Dr) Frank Austin, USN(Ret). A few other awards for service to the membership will be given as well to CDR (Dr) Kris Belland, USN, and CDR (Dr) Ed Park, USN.

Friends and new members of the Pilot-Physicians group are welcome to join us for all or part of the evening. Dress is casual/relaxed. If you have any questions, please contact Dr. Dwight Holland at 540-761-1576, email him at Dwightholl@aol.com

In Memoriam

Clayton S. White, M.D., died last year at the age of 92. A native of Colorado, he graduated from the University of Colorado School



of Medicine in 1942. He had also been a Rhodes scholar. He served 4 years in the U.S. Navy and then joined the Lovelace Clinic in Albuquerque, NM in 1947. He became President-Director of the Lovelace Foundation for Medical Education and Research, following the death of Dr. W. R. Lovelace in 1965.

In addition, he was a former President and CEO of the Oklahoma Medical Research Foundation. He was a Fellow of AsMA and received the 1962 Arnold D. Tuttle Award.

Emil Heinz Graul, M.D., Ph.D., Marburg, Germany has died at the age of 84. Born in Zeitz, Germany, he received his medical degree in 1944 from the University of Leipzig and his Ph.D. in 1948 from the University of Munster. He was a pioneer in the fields of experimental and clinical nuclear medicine and spent his career as an educator and researcher. He founded the International Center for Medical Environmental Sciences and Futuristic Research. He was also a founder and president of the German Society of Aviation and Space Medicine.

CLASSIFIED ADS

POSITION AVAILABLE

AMSUS Seeks Executive Director--

The Association of Military Surgeons of the United States (AMSUS) is seeking an executive director with proven leadership skills. AMSUS is the Society of the Federal Health Agencies whose nearly 10,000 members include health professionals in the Army, Navy, Air Force, U.S. Public Health Service, including National Guard and Reserve, and the Department of Veteran Affairs (<http://www.amsus.org>). Applicant should have substantial experience in federal medicine at the senior management level and possess demonstrated executive leadership skills. Applicants should submit cover letter and resume including references to AMSUS, 9320 Old Georgetown Road, Bethesda, MD 20814, Attn: Executive Director.

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