



# CSA Courier

## President's Message: Aerospace Medicine — A Look Back and A Look Forward — *Richard Leland*



"In the practice of aerospace medicine, we may deal with the normal physiology in an abnormal environment" DeHart, Roy L. Fundamentals of Aerospace Medicine

### A Look Back...

Aerospace medicine has evolved in parallel with aviation and space developments. Although this evolution was slow at first, after man achieved flight capability, both accomplishments and challenges occurred at increasingly rapid rates.

Aerospace Medicine began with manned flight. The first manned balloon flight occurred on November 21, 1783 by De Rozier and the Maruis d' Arlandes. During this flight, they attained a height of 85 meters.

From the first flight, ballooning increased in frequency. Balloons became more sophisticated and higher and higher alti-

tudes were attained. As higher and higher altitudes were reached, pilots began reporting unusual physiological effects.

Just last month, Felix Baumgartner ascended in a balloon to an altitude of 128,100 ft from which he made his historic, supersonic free fall jump.

The first controlled and scientific aeromedical research is generally credited to Paul Bert. In fact, he is still known today by many as the "Father of Aviation Medicine". Realizing the need for safe controlled scientific conditions to study the effects of altitude, Paul Bert created the first altitude chamber in 1878. Through his experiments, Bert determined that the minimum partial pressure of Oxygen (in the lung) that would sustain life was 45 mm Hg.

This research led to the development of supplemental oxygen systems to help people cope with the low partial pressure of oxygen at higher and higher altitudes. Then pressurized cabins for balloons became possible and on 27 May 1931 Aguste Piccard and Paul Kipfer, Germany reached an altitude of 51,775 feet in a balloon with a pressurized gondola.

Toward the end of the 19<sup>th</sup> century, man's fascination with flight shifted to aircraft. Although a number of

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people were involved in designing both non-powered and powered aircraft, few were successful.

The first successful aircraft were gliders. A leader in the field of glider design and piloting was Otto Lilienthal. During the period between 1891 and 1896, Lilienthal built over 2,000 gliders<sup>5</sup> many, of which were monoplanes and some of which achieved distance of over several hundred feet.

The first Powered flight was by Orville and Wilber Wright at Kitty Hawk, North Carolina, USA, 10:35 AM December 17, 1903. This flight had duration of 12 seconds and covered a distance of 120 feet.

The dawning of World War II brought aircraft technology to the next level. Now not only were aircraft flying higher and faster than ever before, they were also capable of generating high *G* levels during maneuvering causing "Fainting in the air". This was reported by aerobatics pilots, who suggested that a "crouching posture with the head upright afforded them protection against losing consciousness from the *G* forces.

in 1942, W. R. Franks in Britain designed the first antigravity suit. Interestingly, Anti-*G* suit technology has remained essentially unchanged since that time. Only recently have alternative approaches been fielded.

In an effort to help design better restraint systems for military jet aircraft, the U.S. flight surgeon John Stapp conducted a series of tests on a rocket-powered sled, culminating on December 10, 1954, when Colonel Stapp underwent deceleration from a velocity of 286 m (937 ft/sec) to 0 in 1.4 sec.

Ejection seats became necessary for pilots to escape disabled aircraft in WW I. The first essential ingredient for the ejection seat was the parachute, which became a practical reality about 1918. The combined use of a parachute

and an ejection seat occurred in 1934.

Currently, the aviator is well protected due to development efforts over the past 8 decades. Current equipment provides protection to aviators from altitude stresses, high *G* forces, and allows escape from the aircraft at extremely low altitudes.

Protective equipment from altitude stresses includes:

- Oxygen Storage Systems including HPOX, LPOX and LOX. More recent developments include onboard Oxygen Generating Systems

- Oxygen Delivery systems that include diluter demand Oxygen regulators that automatically increase Oxygen content as altitude increases and automatically provide pressure breathing. These devices can provide for the pilots physiological need or Oxygen up to 50,000 feet

- Full pressure suits that protect the pilot from low atmospheric pressure, low temperature and hypoxia to altitudes in excess of 100,000 feet

- Pressurized and air conditioned cockpits/cabins that allow comfortable air travel and all the way up to extended space habitation

Protective equipment from High *G* stresses includes:

- Anti-*G* Suits, most notably ATAGS, the Advanced technology Anti-*G* suit

- High Flow Anti-*G* valves

- Assisted Positive Pressure for *G*

- Combination high altitude and high *G* protection systems

Escape Systems with the following characteristics:

- Rocket propulsion systems for more tolerable ejection forces

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**We continue to work on current human factors issues to help pilots and aircrews better cope with increasingly complex environments.**

## President's Message: Aerospace Medicine — A Look Back, A Look Forward (cont. from page 2)

- 0 feet and 0 altitude capability
- Rapid (less than 2 seconds) ejection to parachute deployment capability
- Post ejection stabilization systems
- Active Limb restraint systems to minimize flailing injury for high speed ejection

Additionally, aerospace medicine research and development has extended the pilot's ability to operate in the night environment with Infra-red imaging systems, low light imaging systems, and Night Vision Goggles.

### A Look Forward...

Looking forward, there are numerous areas where aerospace medicine will evolve to protect people and allow them to function safely and effectively in the air and space environments.

The medical clearance and training for commercial space flight participants is a significant evolving area that is receiving attention. Although, there is ample data on selection of astronauts, there is little data to establish criteria for commercial space flight participants. Work will be done to define what medical conditions are and are not acceptable for participation in suborbital and orbital flights. Another area is defining what protective equipment will be necessary. Finally, developing and administering training programs to

prepare participants for the physiological and psychological stresses associated with orbital and suborbital space flight.

UAVs are being used in increasing numbers. Design of control stations, research into human factors issues associated with UAV flight and training of UAV pilots are all areas where aerospace medicine can and will research, develop, and provide solutions.

As aerospace medicine address human factors issues into the future, we also need to continue work to address current human factors issues including spatial disorientation, aircraft upset recognition and recovery, G-induced loss of consciousness, and cockpit resource management in ever increasingly automated cockpits.

We can be proud of the accomplishments in aerospace medicine that have been made over the past 8 decades.

We continue to work on current human factors issues to help pilots and aircrews better cope with increasingly complex environments. We look forward to the new and interesting challenges that we will be able to help solve in the future. I think that is what makes our industry so exciting, the constant opportunity to help people operating in extreme environments be safer, more effective, and more efficient.

So, if you are still reading...put this down and get busy :>). We have work to do.

### Business Bullet —

## NASA and Epiomed Therapeutics Inc. Agree to Develop Nasal Spray for Motion Sickness

Houston, TX, USA - NASA's Johnson Space Center in Houston and Epiomed Therapeutics Inc. of Irvine, Calif., have signed an agreement to work together to develop and commercialize a nasal spray to fight motion sickness. The drug, intranasal scopolamine, or INSCOP will be fast-acting and more reliable than the oral form. INSCOP will be available for use by NASA, the U.S. De-

partment of Defense and travelers on land, air, and sea. For more information, please visit <http://www.nasa.gov/centers/johnson/slsd/index.html>

Do you want your organization to get more involved in AsMA and CSA Activities?  
See "Reporting for Duty" on Page 18

## Atlanta Accomplishments...

The Corporate & Sustaining Affiliate (CSA) ran a "peach" of a program during the 2012 scientific meeting of the Aerospace Medical Association, augmenting opportunities for corporate members to network and providing a home for businesses within the annual program. CSA President, Dick Leland from ETC, presided over the Third Annual CSA Business Luncheon, highlighting new directions for the History Initiative, celebrating achievements in CSA financing, announcing the ongoing leadership of current officers, and hosting an esteemed guest speaker, Rodney E. Nickell, PhD. Dr. Nickell, from Inomedic Health Applications, shared insights on radiation exposure in long duration space flight with the CSA membership and luncheon attendees.



Rodney E. Nickell PhD, from Inomedic Health Applications, speaks on radiation exposure on a long duration space mission to Mars at the 2012 CSA Business Luncheon, hosted by officers at the head table, from left to right, CSA Historian Mary O'Connor (CDC/NIOSH), CSA Vice President Leroy Gross MD (Inomedic Health Applications), CSA Sec.-Treas. David Hale (Pilot Medical Solutions), and CSA President Dick Leland (ETC).

CSA Vice President Leroy Gross MD (Inomedic Health Applications), Historian Mary O'Connor (CDC/NIOSH), and Secretary-Treasurer David Hale (Pilot Medical Solutions) joined Mr. Leland at the luncheon to share the year's successes and 2012 CSA sponsorships.

With developmental assistance from the AsMA Corporate & Sustaining Membership Committee

(CSMC), CSA sponsored two panels during the 2012 AsMA annual scientific meeting. Traditionally, CSA has sponsored panels that showcase aerospace and aeromedical advancements with an impact on technology and commerce and panels that support topics, less commonly included in the scientific programs. This approach has afforded CSA the opportunity to sponsor research and operational presentations that are on trend, interesting for business members, and bolster underrepresented sections of the general membership. Chaired by Marian B. Sides PhD, former CSA and AsMA President as well as the current President of Education Enterprises, "Strategies for Cost Effectiveness and Productivity in International Airline Medical Operations" provided perspectives, from a global panel of airline medical directors (AMDs), on effective metrics and their communication within airline organizations. AMDs from Lufthansa, Cathay Pacific, Iberia, Emirates, and Air France airlines joined to provide context for cost savings and efficiency metrics for airline medical departments.



"Strategies for Cost Effectiveness and Productivity in International Airline Medical Operations" panel participants and chairman, pictured from left to right, Drs. Uwe Stueben (Lufthansa Airlines), Marian Sides (Education Enterprises President and panel chairman), Ramon Dominguez -Mompell (Iberia Airlines), Fiona Rennie (Emirates Airlines) and Robert Cocks (Cathay Pacific).

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## Atlanta Accomplishments... (cont. from page 4)

"Contributions of Aerospace Nursing and Research Design in a Diverse Global Society", a panel co-sponsored with the Aerospace Nursing Society, identified research issues important to progress in aerospace nursing. Nurse panelists, Richard Gustavson RN, Janet Sanner RN, Marian B. Sides PhD, and panel chairman Col Nora Taylor RN provided research insights important for nursing advancements in hyperbaric oxygen therapy, occupational health, air evacuation and readiness, and aerospace nursing history. Their presentations showcased a year of efforts towards the completion of the Aerospace Nursing Primer, a CSMC initiative due for completion in the spring of 2013 to provide guidance for more independent scientific forum development for CSA.

CSA Secretary-Treasurer David Hale produced the 2012 CSA Speakers Bureau this year with guest speaker, Robert T. McGrath PhD, Vice President of the Georgia Institute of Technology and Director of the Georgia Tech Research Institute (GTRI). He demonstrated the array of defense and security research options GTRI offers to the military and homeland securities industries.



CSA President Dick Leland presents a Certificate of Appreciation to Robert T. Mc Grath PhD, featured speaker for the 2012 CSA Speakers Bureau in Atlanta.

With the help of the AsMA Executive Director, the CSMC's Corporate Forum enjoyed its highest attendance on record in Atlanta. The program was converted to a Breakfast, a comfortable gathering for new members and prospective members to learn more about the CSA Benefits of Affiliation. In addition to presentations by the AsMA Executive Director, Jeff Sventek MS, and former AsMA President, Fanancy Anzalone MD, explaining AsMA advocacy efforts and welcoming all to the AsMA Family, respectively, Eagle Applied Sciences, Education Enterprises, and ETC joined the roster. Deborah Lickteig, Corporate Administrator from Eagle Applied Sciences, provided an overview of the diversity of our membership and trends in aerospace technology today. Marian B Sides, PhD, from Education Enterprises, shared insights on CSA beginnings and structure, while Dick Leland from ETC revealed the many ways his company enjoys the Benefits of Affiliation. The program was fuel for our bodies to start the last day of exhibiting and for our mind to share within our businesses, facilitating new ways to grow through CSA membership.

Below: CSA Vice President Leroy Gross MD (Inomedic Health Applications), CSA President Dick Leland (ETC), 2012 CSA Speakers Bureau featured speaker, Robert T. Mc Grath, CSA Secretary-Treasurer David Hale, and CSA Historian Mary O'Connor.



## NASTAR Center Receives Second FAA Safety Approval

Southampton, PA — The National AeroSpace Training And Research (NASTAR®) Center earned its second safety approval from the FAA for commercial suborbital spaceflight training for the center's Falcon 12/4 Altitude Chamber. This safety approval meets the Crew Qualification and Training Requirements of 14 CFR § 460.5 for Commercial Spaceflight and allows the NASTAR Center to conduct altitude chamber operations from zero (0) feet up to 100,000 feet to support commercial space launch activities, including research, testing, and training pre and post-flight. Rapid decompression events up to equalization altitudes of 30,800 feet are also approved.

This safety approval (SA 12-004) is the second received by NASTAR and one of only four that the FAA Office for Commercial Space Transportation has granted to date. In April 2010, NASTAR Center was the first recipient of an FAA safety approval for its Space Training System: Model 400 (STS-400), a high performance training simulation system capable of replicating the acceleration *G* forces, vibrations, and visuals associated with suborbital space flight.

The altitude chamber safety approval from the FAA adds to NASTAR's credibility as a leading provider of Commercial Spaceflight Training. Parent company ETC's CEO Mr. William Mitchell stated, "The addition of this FAA safety approval is a testament to the dedication NASTAR Center has to providing the best possible training experience for commercial space training participants. The ability of NASTAR Center to provide realistic demonstrations in a reduced oxygen environment is a vital part of any training program. We are proud that we have demonstrated to the FAA that, not only do we manufacture the best altitude chambers in the world, but also provide the best training possible while upholding the strict safety guidelines required by the FAA."

So far, the NASTAR Center has trained over 250 people for upcoming commercial spaceflights in its training program, including 115 future Virgin Galactic 'Astronauts,' 45 scientists from Universities around the country who plan to conduct research on commercial space flights, and 70 Accredited Space Agents (ASA's).



*Photograph provided by NASTAR Center*

**Augment your organization's visibility  
by sending the editor a corporate  
profile for our publications.**

**CSA NOMINATIONS ARE IN  
PROGRESS!**  
Consider an Officer position to  
augment your organization's visibility.

## Joe Crosson, Arctic Aviation Pioneer

— by Mary O'Connor



Joe Crosson was born in Kansas in 1903 and was fascinated by flight at a young age. He and his sister Marvel saved money to buy an airplane; Joe learned to fly it and then taught Marvel to fly. They barnstormed together until Joe moved to Alaska to work as a pilot. Marvel soon followed and was the first female to receive a pilot's license in the Alaska territory.

Joe quickly became recognized as a fearless and well-respected bush pilot. Joe and his good friend Ben Eielson flew Lockheed Vegas in Antarctica as part of the Wilkins-Hearst Antarctic Expedition in 1928. In the winter of 1929, Ben Eielson was part of a mission to retrieve stranded passengers and a million dollar's worth of furs aboard a cargo ship that was caught in the ice off the coast of Siberia. Ben and

his mechanic departed during a blizzard and never reached the ship. Joe led the international search party and found the wreckage of his friend's plane; both men had perished when the plane crashed into a Siberian hillside.

Joe was working for Alaskan Airways in 1931 when a diphtheria epidemic broke out in Point Barrow. Joe flew life-saving serum from Fairbanks to Point Barrow (502 miles) in five hours and ten minutes - a vast improvement from the 127 hours it took to move serum by dogsled 674 miles from Nenana to Nome in 1925!

At 28 years old, Joe was the first pilot to land on Mt. McKinley and flew the first aircraft in support of a climbing expedition. Joe dropped members of a research team and their supplies on the Muldrow Glacier; they planned to set up a camp to measure cosmic rays. Unfortunately two members of this party became the first fatalities on Mt. McKinley when one member fell into a crevasse and the second one attempted to save him.

Joe married Lillian Osborne, a close friend of his sister, in 1930. They had a busy, happy life that was often centered on aviation. Joe was a friend and hunting partner of Wiley Post, he was the pilot that carried the remains from Alaska to Seattle after Wiley and Will Rogers were killed in a plane crash at Point Barrow. The aviation community lost an integral member when Joe died of a heart attack at age 45. Lillian died in Seattle in January 2012, at the age of 103.

Mary O'Connor serves as the Historian for the Corporate & Sustaining Affiliate of the Aerospace Medical Association. She is the Coordinator for the Aviation Safety in Alaska Program at the Alaska Pacific Office of the National Institute for Occupational Safety and Health.

*Photograph from Alaska Air Museum.*

## Banner Year for InoMedic Health Applications, Inc

InoMedic is the Prime Contractor for NASA's Medical and Environmental Services Contract (MESC) at Kennedy Space Center. This multi-discipline services contract provides aerospace medicine; occupational and emergency medical support; environmental protection and ecological services; environmental health, industrial hygiene; radiological support; occupational safety and employee health and welfare services. This unique combination allows InoMedic to provide comprehensive worker health support from initial certification exams to on-site worker protection to workers' compensation and rehabilitation support.



InoMedic also provides extensive ecological professional services to Kennedy Space Center, maintaining an impressive portfolio of research scientist and Ph.D's who monitor and sustain the delicate balance of space launch and related industrial activity with 130,000 acres of wildlife preservation.

During Space Shuttle flights, InoMedic also provided complete on Center medical monitoring and physiological support for pre-launch and post-flight monitoring of all the Space Shuttle crews and International Space Station occupants returning to Kennedy Space Center. While Shuttle flights are ended, InoMedic's aerospace medicine activities have continued in research and development support.

InoMedic is proud of the accomplishments of its dedicated personnel this past year in supporting NASA's mission. Selected recognitions garnered by InoMedic employees in GFY 2012 include:

**The NASA Exceptional Public Achievement Medal** was awarded to Rob Bullock for significant, specific achievement and substantial improvement in operations, efficiency, service, financial savings, science, and technology which contributes to the mission of NASA for his outstanding support to NASA resulting in a dramatically revamped and improved, cost-

effective, radiological contingency response capability for major source launches.

The NASA Exceptional Public Achievement Medal is NASA's highest form of recognition that is awarded to an employee who, by distinguished service, ability, or vision personally contributed to NASA's advancement of United States' interests.

The individual's achievements and contributions demonstrates a level of excellence that made a profound and indelible impact on NASA mission success, and therefore, the contribution was so extraordinary that other forms of recognition by NASA would be inadequate

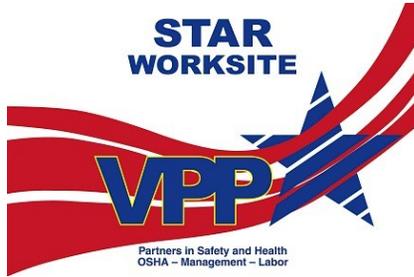
**The Silver Snoopy Award** was received by Catherine Dibiase for outstanding achievements related to human flight safety or mission success. This award is given to NASA employees and contractors for outstanding achievements related to human flight safety and mission success. The award certificate states that it is "In Appreciation for professionalism, dedication and outstanding support that greatly enhanced space flight safety and mission success." The award is given personally by NASA astronauts as it represents the astronauts' own recognition of excellence. The Silver Snoopy award is overseen by the Space Flight Awareness program at NASA.

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## Banner Year for InoMedic Health Applications (cont. from page 8)

The **Voluntary Protection Program StarAward** was presented to InoMedic. The VPP STAR, Occupational Safety and Health Administration's (OSHA) highest award, is presented only to businesses that pass a rigorous inspection for comprehensive safety and health management systems. The award represents the outstanding leadership of Mike Runion, InoMedic's Quality Assurance and Safety Manager at the Kennedy Space Center and the entire InoMedic workforce.



**Space Flight Awareness (SFA) Team Award** for the Mars Science Laboratory Cruise Stage Heat Rejection System Freon Recovery Team was awarded to Christine A. Vanaman. This honor award is presented to those that demonstrate dedication and hard work, performing duties at the highest professional standard. Employees must have significantly contributed to the human space flight program to ensure flight safety and mission success. The Space Flight Awareness Team Award is overseen by the Space Flight Awareness program at NASA.



**Catch an Environmentalist Award** was received by Gina Parrish. This award is given to recognize outstanding performance by an individual, small group, or organization that demonstrated exemplary efforts in support of the environmental & energy awareness program



and has encouraged cultural change/awareness for environmental stewardship and improved energy efficiency within the workforce. Ms. Parrish was recognized for her KSC office supply recycling efforts.

Other selected awards and recognitions from over 20 individual and group citations in 2012 include:

- NASA Group Achievement Award - Dune Vulnerability Team.
- NASA Group Achievement Award - Mars Science Laboratory Mission Integration Team
- NASA Group Achievement Award - Sustainability Plan Team

As InoMedic enters 2013 it will continue to bring the experience and technical skills of its employees that has been developed over decades to support NASA and the Commercial Space Industry in achieving success in the next generation of space exploration.

*Images provided by InoMedic*

### Special points of interest:

- CSA General Business Meeting and Luncheon: Monday, May 13, noon
- 2012 Corporate Forum Breakfast: Tuesday, May 14, 7:30 AM
- CSA Speakers Bureau: Tuesday, May 14, 5:30 PM

## Oregon Aerospace Expands With New Facility

Scappoose, OR — Construction is under way at Oregon Aero, Inc. on a 22,000-square-foot facility that will not only expand the company's production capability but also help boost economic activity throughout the region.

Nearly 100 project leaders, dignitaries and supporters attended the September 28 groundbreaking.

This is a great opportunity to look ahead, said Mike Dennis, President and Chief Executive Officer of Oregon Aero, to feel optimism and to be energized about the future.. On hand for the lunchtime event were scores of officials and representatives from the wide range of agencies that helped bring the project to fruition, including the Port of St. Helens, the city of Scappoose, Columbia County and the state of Oregon. Also in attendance were state Rep. Brad Witt, D-Clatskanie, state Sen. Betsy Johnson, D-Scappoose, and U.S. Rep. Suzanne Bonamici, D-Ore.

"This is a great opportunity for the city of Scappoose, for Columbia County and really for the entire state of Oregon," Bonamici said. "This not only builds the tax base, but it provides job opportunities. And it is a great example of a company committed to keeping manufacturing right here in the United States."

The \$1.5 million hangar, which is being financed by the State of Oregon and the Port of St. Helens, will house operations for the development and manufacturing of Oregon Aero's advanced, maximum-comfort, safer aviation seating systems and aircraft interior upgrades. It will accommodate a wide range of fixed wing and rotor wing aircraft and be home to the company's FAA-approved repair station and its customer service department.

When contractor J.H. Kelly completes the facility, projected to be in late February 2013. Ore-

gon Aero will lease it from the Port. The company anticipates that the expansion will provide opportunities for new and additional business, increased exports and more jobs.

"This will help bring real dollars to Oregon," said Tony Erickson, Chief Operating Officer for Oregon Aero. He also noted that the new facility, which will also have a conference room for hosting events, will allow the company to move its Engineering Department, currently located in St. Helens, to Oregon Aero's headquarters at the Scappoose Industrial Airpark. The move will improve efficiency and also eliminate driving between the two sites.

With the new building, Oregon Aero will nearly double its overall square footage to approximately 50,000 square feet. Beyond the increased opportunities for new business and exports. Oregon Aero already exports to more than 50 countries. officials expect the expansion to provide greater economic and employment benefits to the city, the county and the state.

"This is putting Oregon in a leadership role in aviation," Witt said, "but as Oregon Aero grows the aircraft industry, it also grows our community."



*Photograph provided by Oregon Aerospace*

## Red Bull Stratos Mission — A Physiologist's Jump Side Perspective

— By Lt Col Lance Annicelli, USAF, BSC, CAsP & Lt Col Brian Musselman, USAF, BSC, CAsP



Photo credit: Predrag Vuckovic/Red Bull Content Pool

Over 8 million of us actually watched the Red Bull Stratos mission live via streaming media on October 14th and witnessed history being made, as Felix Baumgartner jumped from his perch over 24 miles above the earth.

The complex engineering required to develop the necessary advanced equipment for the jump such as the pressure suit, helmet and gondola, was truly amazing. The achievements made and the records set were the result of a number of aerospace corporations, engineers, technicians, and scientists, all coming together to ensure a safe and successful mission. Their remarkable ability to plan, launch, and recover from such an altitude is an incredible achievement, and a few of us were fortunate enough to be there to witness this event first-hand.

Out of all the parts and pieces of equipment engineered for the Stratos project, we found ourselves marveling at the design of the full pressure suit and gondola. The suit is similar to the David Clark Company's S1034, currently used by the United States Air Force and NASA pilots for high altitude aircrew. The Red Bull Stratos suit had been modified to provide improved limb mobility and to include an assortment of physiological monitoring systems, communications equipment and a custom drogue chute, which in the event of an uncontrolla-

ble spin provides stability to facilitate safe recovery.

The gondola is a pressurized capsule which in addition to the pressure suit provided Baumgartner with a form of altitude protection as he ascended some 24 miles into the stratosphere. Sage Cheshire Aerospace's elegant design of the portal hatch allowed it to be held in place and sealed simply by the differential pressure between the interior and exterior of the cabin. Once the gondola achieved its float altitude and was depressurized, the portal simply rolled out of the way allowing Baumgartner to egress. The gondola itself is actually one of the first commercial reusable vehicles which has completed several successful ascents and returns leading up to the 14 October jump and is earmarked for the Smithsonian Museum.

From the Red Bull Stratos launch site, located on the Roswell International Air Center, Roswell New Mexico, we were afforded the opportunity to have front row seats for this truly incredible event. As aerospace physiologists, we knew all too well the dangers of the environment in which Baumgartner was about to enter. It was a perfect day for both man and machine, and both had been meticulously prepared for the task at hand.

Baumgartner had practiced every aspect of this jump for years. His first step, stabilization during descent, was critical, as he transitioned through supersonic freefall. Watching from the Mission Control room, the video feed had a surreal quality, like something out of a Hollywood movie. The high definition feed made you feel as if you were there alongside Baumgartner.

Moments into his descent, the team's worst fears seemed to materialize, as Baumgartner appeared to be spinning out of control. You could hear the proverbial pin drop in Mission Control. We held our breaths and waited to see, if Baumgartner would regain his stability or deploy his drogue chute. The engineers anticipated this and had (Continued on Page 12)

## Red Bull Stratos Mission (cont. from page 11)

built in a system which used an accelerometer that would activate a drogue chute in the event Baumgartner was unable or incapacitated. After what seemed like several minutes (but was later confirmed as some 40 seconds), Baumgartner did in fact achieve a stable descent; and the rest of the descent was picture perfect.

Some have used the word "daredevil" to describe Baumgartner. This can be very misleading and does not accurately describe the meticulous training, talent, and experience needed for such an achievement and only discredits his contributions as an aerospace pioneer. Having had the opportunity to meet Felix on several occasions over the past 5 years, we found him to be one of the most professional members of the team and a true expert in his field. Through arduous training he has come to understand the complexities of the high altitude environment and what it takes to not only survive, but to perform extraordinarily in such an extreme environment.

And perform he did... Baumgartner achieved a speed of 833.9 miles per hour (Mach 1.24), becoming the first human to break the sound barrier without any assistance for propulsion, coincidentally on the anniversary of Chuck Yeager's Bell X-1 accomplishment 65 years ago to the day.

Of note, there were three new records set on the 14th of October: (1) the highest manned balloon flight (128,098 ft), (2) the first human to break the sound barrier without the assistance of a vehicle (833.9mph or Mach 1.24), and (3) the highest skydive (119,846 ft). The effort fell 17 seconds short of breaking Col (Ret) Joe Kittinger's 1960 record for the longest free fall time of 4 minutes 36 seconds in part due to his tremendous speed in which he achieved as he exited the gondola.

Of course, you can learn more by visiting the Red Bull Stratos website ([www.redbullstratos.com](http://www.redbullstratos.com)) where the Stratos project milestones have been documented. There is quite a bit of information constantly being updated, the website is almost as

incredible as the freefall itself.

A tremendous amount of physiological performance data was also collected through the ascent and freefall. Led by Dr. Jonathan Clark, the team of support physicians and physiologists anticipate analyzing the data and presenting their findings over the next few years, beginning with the upcoming meeting of the Aerospace Medical Association in Chicago next May.

The Stratos jump sparks research interests across a variety of related aeromedical disciplines, including non-invasive monitoring and aeromedical support technology, human factors engineering, aerospace engineering and manufacturing, life sciences, aerospace physiology, and air transportation. Dr. Clark and the Stratos team have already begun detailing in scientific literature and forums, some of the preparation and medical protocols necessary to manage potential contingencies and emergencies in the event of pressure suit failure and decompression.



l. to r.: Lt. Col. Brian Musselman (USAF), Mrs. Sherry Kittinger, Col. Joseph Kittinger (USAF, Ret.), Lt. Col. Lance Annicelli (USAF).

*Photograph courtesy Lance Annicelli.*

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## Red Bull Stratos Mission (cont. from page 12)

The Red Bull Stratos project provided unique insight into the collaborative efforts of civilian aerospace corporations to meet the demands of an extraordinary mission. From its conceptual beginnings in 2005, the endeavor brought together professionals from a multitude of career fields who all played a vital role, ensuring mission success.



l. to r.: Dan McCarter (David Clark Company), Jack Bassick (David Clark Company), Art Thomas, Red Bull Stratos Technical Project Director (Sage Cheshire Aerospace), Lt. Col. Lance Annicelli (USAF), Lt. Col. Brian Musselman (USAF).

*Photograph courtesy Lance Annicelli.*

Col (Ret) Joe Kittinger, a test pilot and engineer, served as Baumgartner's mentor and Mission Control's capsule communications officer (CAPCOM). A huge fan of Col Kittinger, one cannot imagine anyone better qualified to assist Baumgartner throughout this incredible event.

As career aerospace and operational physiologists, we appreciate the monumental effort and discipline that went into making this project a possibility and a success. We are grateful to have had the opportunity to witness one of the most awe inspiring events in recent history. The scientific gains from the project offer new technologies to improve high altitude

operations safety and equipment, and they have applications important for the future of space tourism as well. Those that had tuned in to see this incredible event are now rediscovering the earlier Excelsior jumps of then Captain Joe Kittinger. There is no doubt that the Red Bull Stratos jump and Felix Baumgartner have inspired the next generation of aerospace pioneers and scientists. We are looking forward to the presentation of the mission findings and data at the next meeting of the Aerospace Medical Association.



*Red Bull Stratos Content Pool Photograph*



*Red Bull Stratos Content Pool Photograph*

## A Look Back and A Look Forward — Project Excelsior and Red Bull Stratos

1960 — Captain (later Colonel) Joseph Kittinger jumps from 102,800 feet during Excelsior III



*United States Air Force Photograph*



*United States Air Force Photograph*



*United States Air Force Photograph*

2012 — Felix Baumgartner jumps from 128,100 feet during Red Bull Stratos



*Red Bull Stratos Content Pool Photograph*



*Red Bull Stratos Content Pool Photograph*



*Red Bull Stratos Content Pool Photograph*

## HeartSine's Innovative Pad-Pak™ Receives TSO-C142a Certification



Newtown, PA - Marc Lawrence, senior vice president, HeartSine Technologies, Inc., has announced that the company's Pad-Pak electrode and battery cartridge, designed for use with its popular Samaritan® PAD 300P Automated Electronic Defibrillators (AEDs), now carries the FAA's TSO-C142a certification. This Technical Standard Order (TSO) applies to non-rechargeable lithium cells and batteries intended for commercial aviation use. Because HeartSine integrates the battery and electrodes into a single self-contained cartridge, there are fewer items for aircraft personnel to procure and inventory, as well as fewer expiration dates to manage.

Thomas N. Bettles, M.D., MPH, the Corporate Medical Director for American Airlines, notes, "The added convenience and confidence that HeartSine's innovative Pad-Pak cartridge offers in terms of inventory control, expiration dates, and ease of use are some of the many reasons we have just signed an agreement with HeartSine Technologies. HeartSine will supply its Samaritan PAD 300P AEDs for all our aircraft, as well as for our ground operations all over the world, from maintenance facilities to corporate offices."

The HeartSine samaritan PAD 300P Public Access Defibrillator offers all airlines a variety of advantages if a Sudden Cardiac Arrest (SCA) strikes in the air, a terminal, or ground operations:

It's designed for use by rescuers of all skill levels. The Samaritan PAD is a completely self-contained unit, with no lid to open, and no complex displays or controls. Its simple two-button operation and intuitive voice/visual prompts with clear instructions guide the user through every step, including pad application, shock delivery and CPR.

This small and light AED makes it easy to store in space-constrained cabins, while saving fuel in the weight-sensitive commercial aviation industry.

Industry-leading 10-year warranty for maximum reliability.

Comprehensive indemnification coverage protects employees and customers, whether trained or untrained, for life of the AED.

When an SCA occurs, the heart stops pumping blood to the rest of the body (including the brain) and the victim quickly loses consciousness. CPR alone will not restart the heart. The American Heart Association recommends defibrillation within three to five minutes for the best outcome. After five minutes and for every minute thereafter, an individual loses 10 percent of his or her brain function due to loss of oxygen. According to the Centers for Disease Control and Prevention (CDC), an SCA event occurs once every 34 seconds.

### About HeartSine Technologies

The mission of HeartSine®, a world leader in personal and public access defibrillators, is to advance the deployment of life-saving defibrillation therapy for the treatment of Sudden Cardiac Arrest in non-traditional areas of care. Our entire line of AED products includes clinically advanced SCOPE™ technology that optimizes the administration of life-saving treatment.

HeartSine's comprehensive portfolio of AED solutions includes planning, design, implementation and administration, enabling medical oversight, training and management of AED devices through a single point of contact.



*HeartSine Pad-Pak*

## Safe Integration of Drones Tested in National Airspace

SAN DIEGO, CA, USA - Officials at General Atomics Aeronautical Systems Inc. (GA-ASI), the U.S. Department of Homeland Security, Customs and Border Protection, and the FAA tested an Automatic Dependent Surveillance-Broadcast (ADS-B)-based surveillance system on a Predator/Gray Eagle-series aircraft, in an effort to demonstrate and enhance remotely piloted aircraft (RPA) flight safety. The test involved GA-ASI's Guardian RPA, a Predator B unmanned aerial vehicle (UAV), and a prototype of BAE Systems' AN/DPX-7 Reduced Size Transponder, a military-grade Identification Friend or Foe (IFF) device. The ADS-B-capable transponder interoperates with military and civilian Air Traffic Control (ATC) surveillance systems. During the test, Guardian's ADS-B IN-capable transponder detected other ADS-B-equipped aircraft in the vicinity, displaying the aircraft on the ground control station (GCS) display. Guardian's ADS-B OUT transponder simultaneously notified other aircraft and ATC of its location and velocity. GA-ASI is a manufacturer of remotely piloted air-

craft (RPA), tactical reconnaissance radars, and electro-optic surveillance systems. For details, go to: <http://www.avionics-intelligence.com/articles/2012/10/ga-asi.html>



*GA-ASI's Guardian RPA, a Predator B unmanned aerial vehicle configured for maritime operations.*

*Image courtesy of Shutterstock.*

Business Bullet —

## First All-Biofuel Flight Takes Place in Canada

San Francisco, CA, USA - Aemetis announced at the Advanced Biofuels Markets Conference that the world's first flight segment on 100% renewable, drop-in biofuel has been conducted by the National Research Council of Canada using its Falcon 20 jet. Previous flights using biofuels have been restricted to a 50% blend with petroleum, but the Applied Research Associates' proprietary catalytic hydrothermolysis process enabled a flight at 100% biofuel use, which is a breakthrough for the

renewable fuels industry. The biofuel was produced using a dedicated industrial oilseed specially developed to provide non-food oil which breaks the reliance on food crops to supply raw materials for biofuel manufacturing.

See <http://www.biofuelsdigest.com/bdigest/?s=aemetis> for more information.

## ETC Sponsors the 2012 AMSRO Scientific Paper Award

The 2012 AMSRO Scientific Paper Award winner in Atlanta was Alec Stevenson BSc., a doctoral candidate from King's College of London. His entry, Subjective and Objective Determination of the +Gz Protection Afforded By The Typhoon Life Support System, was chosen from all student and resident submissions to the scientific meeting for its academic merit, written presentation, and potential impact on the field. Sponsored by ETC this year, the award is one of the oldest academic honors within the Aerospace Medical Association, tailored for students and residents.

Mr. Stevenson is currently engaged in research activities, investigating the effect of combined hypoxic and ischemic insults on blood oxygenation within the brain. After receiving his degree in Biochemistry, he began working at QinetiQ as a junior scientist, and now serves as the technical lead of the Farnborough human centrifuge group. Most recently, his group has measured human brain oxygenation on centrifuge while using near infrared spectroscopy, to determine the time course of re-

covery in brain oxygen levels following simulated aerial combat maneuvers. His interests are broad, ranging from respiratory and cerebrovascular physiology to space tourism, and he has garnered much of his experience through over 1,000 personal exposures to high +Gz on the human centrifuge. He is certainly a young investigator to follow, pushing the envelope in air, sea, and space operations.



*Mr Alec Stevenson in front of one of the cabins of the United Kingdoms man-carrying centrifuge at Farnborough.*

*Photograph courtesy of Alec Stevenson*

### Business Bullet —

## FEDEX Donates Boeing 727 For Safety Training

Greenville, WI, USA - Fox Valley Technical College's public safety training center will use the aircraft for teaching police, firefighters, emergency responders and students earning associate degrees to response to on-board medical emergencies; unruly, disruptive or dangerous passengers; hostage situations, and search-and-rescue operations in a smoke-filled plane. The aircraft's value is estimated at \$1 million to \$1.5 million. Its 29,866th landing took place recently at the Outagamie County Regional Airport in Greenville, where it will stay until it is ready to be moved to the FVTC's new training facility when it opens by the fall of 2014. For additional information, go to: <http://www.therepublic.com/view/story/4ac8858337a242208fa079fa7c5d486b/WI--Technical-College-Boeing-727>



*Photograph by Bill Morrow*

# Reporting For Duty...

Reporting For Duty is a standing column to provide direction for members that want to optimize and customize the benefits of affiliation for their organizations. Read more about the ways you can Advertise, Network, Direct Research, Lead, Recruit, and Market in CSA.

## **Advertise** on the AsMA Website, the Corporate Page & in the CSA Courier.

Banner Ads on the AsMA Website are an exciting new way to augment the visibility of your organization. Many members use the *Corporate Page* published in *Aviation, Space, & Environmental Medicine* and our newsletter, the *CSA Courier*, to showcase corporate profiles, share commentary on business trend, announce corporate milestones, and highlight research achievements. If you have more editing or publishing experience, you may want to submit a newsletter standing column or feature article and attach your company byline. Demonstrate the leadership potential of your organization by considering Editor positions. The sky is just the beginning!

## **Network** at our Annual Scientific Meetings Exhibits and Receptions.

We all need to gain insight into trends in the industry, learn new strategies to overcome financial and operational obstacles, or in planning for personal career moves. Within the Association, the annual scientific meeting is the best vehicle for keeping the Networking chain strong. From Opening Ceremonies to the Honors Night, the activities create plenty of formal and informal ways to keep your finger on the pulse of our collective body. The *CSA Courier's* standing column, *Corporate to Corporate*, and *Aviation, Space, & Environmental Medicine* are formal tools used to facilitate connectivity amongst the membership. Please, remember as new opportunities, achievements, and milestones arise in your organization to share them with the Association in these publications.

## **Direct Research** by Developing and Sponsoring Scientific Panels & Workshops.

Many of our member organizations have research programs and objectives, or have a strong interest in the studies that drive the disciplines of aerospace medicine and the related sciences. Over the years, our CSA members have sponsored research spanning a variety of aeromedical topics from space pharmacology and hypoxia in the setting of underlying disease to dentistry and new basic science findings expanding hyperbarics. As a member, these achievements are claimed by all of our members, a privilege of affiliation. They can serve to bolster your current research programming or expand your research efforts. Joining the CSA Program Committee provides an excellent opportunity for corporate members to interact with industry experts in the Association, guid-

ing the direction of research in our field for years to come. Additionally, CSA supports student and resident research, by providing support and sponsorship to the Aerospace Medicine Student & Resident Organization (AMSRO), the aeromedical scientists and clinicians of tomorrow. Member companies participate, with other aeromedical experts, in the selection of the awardee for their Scientific Paper Award presented during the AsMA annual scientific meeting. Contributions to the research initiatives of CSA can help bolster the research agendas of your company, while networking you with the best minds of the related aeromedical sciences.

## **Lead** the Global Aerospace Medicine Corporate Community by Joining a CSA Committee, Initiative Workgroup, or by Becoming an Officer.

Recognition as an Affiliate of the Aerospace Medical Association (AsMA) provides corporate members the opportunity to have a voice in the business matters of the Association. Thus, resolutions placed before the Association's Council, positions regarding the development of legislation for aerospace medical funding, and general organizational management and financial decisions, as examples, all become within the purview of CSA membership by this status. Thus, CSA welcomes all of its members to participate in the structure established in our bylaws for leadership through our standing committees and offices. The work done by these groups and individuals fuels CSA initiatives, and presents new opportunities for our member businesses to grow.

There are many ways to lead in CSA! If your organization has been involved in the Affiliate over the years, or even if you are a new member with ideas and energy, consider an Officer or Committee Chairman post within the Affiliate. In particular, Officer posts can augment your visibility, positioning you in new ways for meaningful Networking. Though primary officer positions are filled, committee chairman positions remain available.

If you would like to get involved with a little less responsibility, several initiatives are underway and need all hands. The **Philanthropic Initiative** workgroup is developing a program to highlight the philanthropic achievements of the members. They explore giving on behalf of the Affiliate and create programming to attract philanthropists to our membership.

During the Chicago meeting in May, (or now by contacting our Affiliate President, Dick Leland, electronically at [dletc@aol.com](mailto:dletc@aol.com)), learn more about ways leadership in CSA can help your organization meet its goals, augment visibility, and support health and safety throughout the aerospace medicine industry.

(Continued on page 17)

**Recruit** New CSA Members and New Talent for Your Team.

Many companies find the diverse experts of AsMA, a rich resource for potential talent in their organizations. They connect to talented aerospace professional through annual meeting receptions and exhibiting activities.

CSA's Membership Committee joins the AsMA Corporate & Sustaining Membership Committee (CSMC) to recruit new corporate members to the Affiliate and help new companies meet their organizational goals through affiliation. As you identify potential members, present contacts to the CSMC Chairman, Dr. Yvette DeBois (undersearave@surfbest.net). New members are networked appropriately and made aware of opportunities and services available through affiliation. Growing CSA by identifying new potential members strengthens the collective voice for the global aerospace industry!

**Market** Host Receptions, Events, and Sponsor Awards.

In addition to advertising in our publications, on our website and exhibiting at the annual scientific meeting, many of the corporate members sponsor receptions or awards during the annual scientific meeting. Some of these gatherings and hon-ors are recognized by the Association as a whole, while others are designed to attract members, constituents or affiliates of the Association with specific interests and expertise. Usually a Corporate member chooses an award to sponsor that is related to their own goals, or hosts a reception most likely to engage a particular target audience within the Association. Academic institutions, for example, traditionally host evening receptions during the annual meeting, offering a relaxed environment to development important recruitment relationships. Reception, event, and award sponsorship can be new vehicles for you to create relationships with specific groups and celebrate excellence in the aerospace medicine community !

Business Bullet —

**China Plans to Send Second Female Astronaut into Space**

Beijing, China - Chinese officials recently announced that they plan to send their second woman astronaut, or *taikonaut*, into space on the country's fifth manned mission in 2013 to fine tune the docking technologies of its space station. The exact date of the launch of next year's mission will be decided after an assessment of missions by the spacecraft Shenzhou-8 and Shenzhou-9 which docked with the Tiangong-1 space station module currently orbiting the earth. The Shenzhou-10 manned spacecraft will carry three taikonauts into space; the crew will include veterans and women. China sent its first woman, an air force pilot Liu Yang to space early this year. More information on China's space plans is found at:

[http://articles.timesofindia.indiatimes.com/2012-10-28/china/34779930\\_1\\_shenzhou-10-space-lab-module-shenzhou-9](http://articles.timesofindia.indiatimes.com/2012-10-28/china/34779930_1_shenzhou-10-space-lab-module-shenzhou-9)



*Air force pilot Liu Yang, China's first female taikonaut*



*Tiangong-1 and Shenzhou 9*

*Photographs from China National Space Administration (CNSA)*

## GO2 Altitude® Normobaric Hypoxia Training System

RAAF Institute of Aviation Medicine (Adelaide, Australia) has finalised a six-month preliminary evaluation of a new classroom alternative to traditional hypobaric chamber training: the 5-person GO2Altitude® normobaric hypoxia training system. This fully computerised classroom hypoxicator system has been deployed for military aircrew physiological simulation training.

The system employs an onsite automatic generator of medical grade hypoxic/oxygen air using semipermeable membrane air-separation technology. Hypoxia is automatically aborted if any critical parameters (SpO<sub>2</sub> or Heart Rate) are reached. GO2Altitude® 'on-demand' hypoxicator is genuinely compatible with military masks and accurately replicates oxygen regulator breathing sensations. Customisable for different training scenarios touch screen computerised battery of cognitive tests help demonstrate cognitive performance deterioration, enhancing the educational impact.

Flight simulator manufacturers and aviation training professionals are now able to design missions for various flight simulators that include disguised hypoxia episodes. Aircrew are expected to recognise their hypoxia symptoms, report them, and take corrective action. GO2Altitude® aims to further increase the training fidelity and to make hypoxia recognition task specific. GO2Altitude's

'open interface' software exchange protocol now accepts external simulator software commands and instructions. This latest technology offers simple and safe system integration with any type flight simulator.



*Photograph provided by RAAF Institute of Medicine*

Business Bullet —

## Elite Airways Receives Certification

The [AP](#) (11/7) reports that Elite Airways, a "new airline is looking to create nonstop service from several New England airports to Florida after receiving certification from the Federal Aviation Administration." The firm, "based in Portland, Maine...hopes to establish nonstop regional jet service between Portland International Jetport

and Melbourne International Airport in Florida. Bryan Glazer, a "Elite Airways "spokesman, says the airline is also looking at service to Portsmouth, N.H., Worcester, Mass., and possibly upstate New York cities, including Niagara Falls and Plattsburgh."

## Nuts & Bolts

The **Corporate & Sustaining Affiliate (CSA)** is holding its fourth *General Business Meeting and Luncheon* during the Atlanta AsMA annual scientific meeting on Monday, May 13th, at noon. All Primary & Alternative Representatives are welcome and encouraged to join CSA's President, Dick Leland (ETC), President-Elect Leroy Gross, MD (Inomedic, Inc.), Secretary-Treasurer David Hale (Pilot Medical Solutions), and Historian Mary O'Connor (CDC/NIOSH) for this exciting event! The meeting will provide background information on the affiliate for new comers and unique opportunities for positioning, networking, leadership, and contribution for all members. The officers are also planning for the *CSA Speakers Bureau*, an event designed to highlight the annual meeting host city's technical, commercial and/or aerospace achievements. Speaker selections for the Business Luncheon and Speakers Bureau are in progress. The new leadership team for CSA supports connectivity and Networking, and strives to augment the visibility of corporate members. Other directives for the year include CSA website expansion, infrastructure development for CSA finances, and welcoming new Membership & Long Range Planning Committee Chairmen, Deborah Lickteig (Eagle Applied Sciences) and Marian B. Sides, PhD ( Education Enterprises), respectively.

The **AsMA Corporate & Sustaining Membership Committee (CSMC)** will convene for their annual mid-year Business Meeting in this month, before the start of the Scientific Program Committee's annual review of scientific submissions for the May meeting. Issues for this joint gathering of Affiliate and Committee members will include new member offerings, 2013 scientific panel sponsorship and research development, Bellagio 2, CSA Primer development, new ways to recruit across the aerospace industry, and collaborations with other AsMA affiliates and constituent organizations. The CSMC Chairman, Yvette DeBois, MD (and by report CSA President Dick Leland) will be

presenting the work of the CSMC and CSA, respectively, as well as discussing pertinent issues of corporate interest to the AsMA Council during their November mid-year meeting. The **Corporate Forum Breakfast**, designed to apprise current corporate members of the benefits of affiliation and attract new members, is planned for 7:30am on Tuesday, May 14th. Over breakfast, speakers from the CSMC, the AsMA Home Office, and senior members of the AsMA Council will present methods to Network, Market, Recruit, Research, Educate and offer an opportunity for the corporate members to involve the Association in issues affecting the aerospace marketplace. CSMC members continue to model some traditional affiliate functions for the corporate members, while others as part of the Transition Program, are now managed by CSA leadership. To help CSA launch and contribute, in the tradition of other AsMA affiliate organizations, CSMC volunteers have served in key operational positions for CSA. The Nominating Committee, History & Philanthropic Initiatives, the Speaker's Bureau, and the CSA Courier, all have been successfully transitioned from CSMC-modeled management to CSA management. Eilis Boudreau, MD PhD, a CSMC volunteer, serves as the Affiliate Program Committee (APC) Chairman, lending her expertise to the development of the CSA Primer, research forum development, and annual scientific meeting presentation and sponsorship.

The **Affiliate Membership Committee (AMC)** is chaired this year by Deborah Lickteig from Eagle Applied Sciences. In this new post, she welcomes new members, facilitates Member Benefits Consultations, contributes to the newsletter, supports the Secretary-Treasurer with directory updates, and assists the officer team in developing a nomination slate for the 2013-4 elections. The Affiliate welcomes six new organizations since the last issue of our newsletter: Shoreland, GTRI, CamLock, MedCare Professional, Good-Lite & QinetiQ. The CSMC solicitation team continues to engage in meaningful conversations with several aerospace organizations. They use solicitation

## Nuts & Bolts (cont. from page 17)

guidelines, developed to explain the benefits of affiliation and customize presentations, and now have new visual aids to support solicitation efforts. Additionally, the CSMC members are conducting **Member Benefits Consultations**. They are an opportunity for focused conversations with new members, as well as veteran members with new interests and directives, to assist members in choosing Affiliate activities to enhance mutual organizational objectives.

The **CSA Courier**, is produced and distributed primarily from Affiliate leadership efforts, with CSA President Dick Leland and Greg Kennedy from ETC doing the heavy lifting. GO2Altitude, CDC/NIOSH and Mary O'Connor contributed interesting feature stories to this issue, while ETC/NASTAR, Inomedic Health Applications, and Oregon Aero submitted informative company profiles to familiarize members with their organizations. CSA Secretary-Treasurer David Hale, MD (Pilot Medical Solutions) and Yvette DeBois, MD (CSMC) were additional contributors.

CSMC members Col. Margaret Matarese, MD, Chris Borchardt, MD, and Mark Loeffler, MD, greeted the exhibitors during the 2012 annual scientific meeting in Atlanta, Georgia. The **Exhibitor's Program**, under the leadership of Dr. Matarese, has become an invaluable tool for recruitment. The greeters extended a personal message of gratitude to each exhibitor and identified organizations for future solicitation. The impact of annual meeting exhibiting on subsequent business functions is a focal interest to this workgroup, as well. Dr. Matarese conducted a post-exhibiting survey to ensure the experience is connected to business growth year 'round. The results of the survey are presented to the AsMA Council for definitive actions.

During the New Orleans annual scientific meeting in 2007, the assembly expressed an interest in better characterizing the involvement of the cor-

porate members within the Association over the years. A preliminary review of records at the Home Office confirmed a wealth of information on past members and aerospace commerce history. Deborah Lickteig from Eagle Applied Sciences, LLC is guiding the **History Initiative** workgroup in their task to capture the historical contributions of the Corporates to the Association. She welcomes all interested in showcasing CSA contributions to join her in this effort.

The **Philanthropic Initiative** is a new venture for CSA that was initially piloted by Marian Sides, PhD (Education Enterprises) that explores appropriate venues for giving on behalf of the members, develops programming to stimulate giving, and identifies the philanthropic activities of the members. Dr. Sides plans to continue these efforts and encourages other CSA members to join her in celebrating corporate giving! Additionally, she is developing plans for the second **Bellagio Project**. The first international conference held traditionally in Bellagio, Italy, joined established scientists and clinicians with upcoming aeromedical students and training residents in focused consideration of the studies to date and research voids on issues impacting cardiovascular health in long duration space-flight. The venue and scope of Bellagio 2, planned tentatively for spring 2014, are under consideration now, and interested sponsors and participants should contact Dr. Sides at [mbsides@sbcglobal.net](mailto:mbsides@sbcglobal.net) for more details.

Under the direction of Eilis Boudreau, MD PhD, the **Affiliate Program Committee (APC)** has selected panels for sponsorship during the Chicago meeting. CSA has sponsored panels exploring a variety of aeromedical issues from environmental medicine and toxicology to dentistry in space operations. Traditionally, topics for sponsorship have been chosen for their innovation, novel contribution to the scientific program, and/or their potential to create interest and support portions of the AsMA membership targeted for growth. Under the guidance of the APC, CSA is sponsoring three panels and one workshop for evaluation by the Scientific

## Nuts & Bolts (cont. from page 18)

Program Committee and planned for presentation at the Chicago scientific meeting. The panels describe the biomedical and technical challenges in medical support of the Red Bull STRATOS jump. Dr. Jonathan Clark lead an interdisciplinary medical team to support Felix Baumgartner's space jump from over 119,000 ft last October 14<sup>th</sup>. The workshop offers a novel platform within the annual scientific program, reaching out regionally within our host city to bolster awareness of aerospace nursing career and research opportunities. Midwestern nursing students and professionals will receive an introduction to the diverse career options within field and obtain preparation for research contributions. The panels and workshop presentations support the Association by bolstering the comprehensiveness of scientific program, and by highlighting unique perspectives and topical challenges in today's aerospace clinical and operational experiences.

The **CSA Primer** is due for completion at the end of the year. Catherine Dibiase RN, Janet Sanner, RN, Marian Sides PhD, Richard Gustavson RN, Col. Nora Taylor RN, and Yvette DeBois, MD have taken the aerospace nursing section of the Primer to "cruise altitude." The Aerospace Nursing Primer is the first of the nine Primer texts under development for CSA by the CSMC to provide a tool to support independent, ongoing, scientific programming by CSA. The Primer will be a bridging resource to facilitate the ability of our non-medical corporate members, with an interest in related research, to develop scientific programming for CSA sponsorship. Additionally, it will explain to business members, with an interest in research sponsorship and funding, the commercial benefits for supporting aeromedical research.

The **CSA Speakers Bureau** is a program, usually conducted on Tuesday evening during the annual scientific meeting, dedicated to bringing local commercial perspective or topical industry focus to our meeting. Leroy Gross, MD has developed several speaker op-

tions for the Atlanta meeting. The 2013 Speaker Bureau will attempt to surpass the bar set by last year's impressive, "Radiologic Contingency Planning for the Mars Science Lab Mission", by Rodney E. Nickell from Inomedic Health Applications. Feature speakers for the event are under consideration.

CSA and the CSMC have longstanding relationships with the **Aerospace Medicine Student & Resident Association**, providing opportunities for leadership, mentoring, and acknowledgement of excellence through sponsorship of their Scientific Paper Award. Contact CSA President Dick Leland (dletc@aol.com) for details on award sponsorship and submission review participation.

The **Affiliate Nominating Committee (ANC)** will be working in January to identify talented leaders amongst our corporate members for select Officer positions in CSA. The selection of potential leaders for CSA is an important contribution, because they are charged with setting policy and procedures with a lasting impact on our new union. Deborah Lickteig (Eagle Applied Sciences) assists the current CSA officers in this process, and welcomes all interested in CSA Leadership.





# CSA Member Companies

## November 2012



Aerospace Medical, PLC

Aerospace Medicine Residency Program,  
UTMB

Air Canada

Aircraft Owners & Pilots Association

Air Line Pilots Association

Allianz Global Assistance

American Airlines

Aqua Lung America, Inc.

Archinoetics/Fatigue Science

Armed Forces Benefit Association

Aviation Medicine Advisory Service

Baxter Healthcare Corporation

Cam Lock Limited

Centers for Disease Control and Prevention/  
National Institute for Occupational Safety  
and Health

Cobham Life Support

David Clark Company, Inc.

Eagle Applied Sciences, LLC

Education Enterprises, Inc.

Egyptian Aviation Academy

Environics, Inc.

Environmental Tectonics Corporation

Gentex Corporation

Georgia Tech Research Institute

GO<sub>2</sub>Altitude

Good-Lite

HeartSine Technologies, Inc.

Harvey W. Watt & Company

Honeywell Safety Products

Inomedic Health Applications, Inc.

Instituto Nacional de Aviação Civil

International Federation of Air Line Pilots  
Associations

Lifepoint, Inc.

Lockheed Martin

Martin-Baker Aircraft Company Limited

Mayo Clinic

MedAire, Inc.

MedCare Professional

NeuroKinetics Health Services (B.C.), Inc.

NOMADiQ Defence Solutions

Oregon Aero, Inc.

Pilot Medical Solutions

Psoria-Shield, Inc.

QinetiQ

Shoreland, Inc.

South African Airways

Spectrum Aeromed

Universities Space Research Association  
(USRA)

Verathon Medical Corporation

Wyle