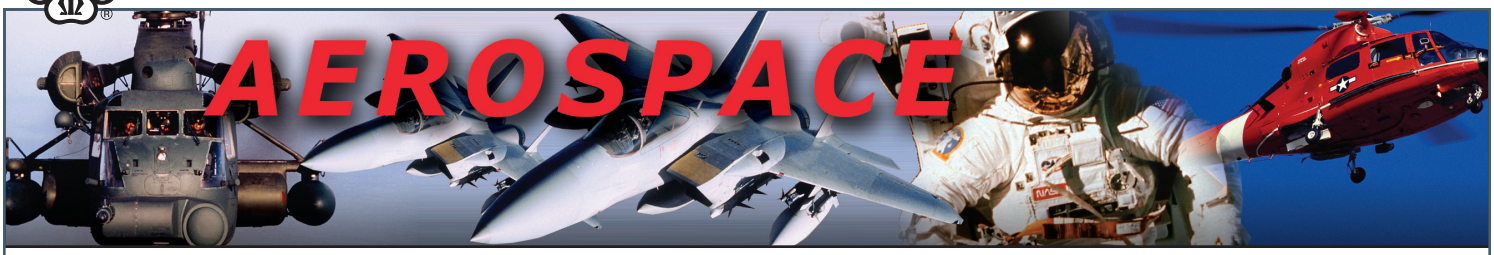

MESSAGE FROM DIVISION CHAIR

■ ANDREW S. BICOS, PHD

As the new chair of the ASME Aerospace Division Executive Committee, I am looking forward to this year. It has been 100 years since the Wright Brothers first flew in powered flight. We have come a long way… yet the future will be even more fantastic and members of the Aerospace Division will be there to make it happen.

The role of the Aerospace Division is to help our members with the resources they need to continue to make these contributions. The Aerospace Division is primarily concerned with the mechanical, propulsion and systems engineering aspects of aircraft, spacecraft, and missile design and operation. The division is organized into technical and administrative committees, and functions primarily through the organization and sponsorship of technical conferences and publications, and recognition of outstanding individual technical contributions by means of awards and honors. Our division is an integral part of ASME. The Aerospace Division is one of the largest of the 37 Technical Divisions in ASME. As such, we can do much to leverage the strength of ASME to help us achieve our goals for our membership, as well as for the aerospace community at large. This is very important at this time when a large part of the aerospace community is suffering from the economic downturn even as we celebrate the 100th anniversary of the Wright Brothers first flight.

In the upcoming 2003-2004 ASME fiscal year, our goals for the Aerospace Division are to strengthen our operating infrastructure to better support our members, continue to strengthen our technical committees, continue our strong government relations activities, recognize those among us who have made outstanding technical contributions, and extend our reach into the community. We will continue to provide our members with opportunities to expand their skills through conference participation, make them aware of the latest trends in engineering, give them a voice at the national level for government relations, and extend their networks through opportunities for professional service.

I look forward to working with you this year to continue improving our Aerospace Division to better serve our members. Please check our website for the latest information at http://www.asme.org/ divisions/aerospace/

JOHN W. ROBINSON ■ Editor

WRIGHT FLYER III ■ 1905

The Wright Flyer III was designated a Historic Mechanical Engineering Landmark by ASME International on Thursday, Feb. 20, during Engineers Week 2003.

The Flyer is located in Dayton's Carillon Historical Park, an industrial heritage museum known for outdoor exhibits and other displays from this prolific community of inventors and engineering achievement.

The Wright Flyer III is recognized as the first practical aircraft and now joins the roster with other ASME Historical Landmarks. This machine taught the Wright brothers—and the world how to fly in a useful fashion. While the Wrights had first taken to the air a year-and-a-half earlier, their first flights at Kitty Hawk, North Carolina, proved only that powered flight was indeed possible. Making flight practical and useful was something else. That effort required

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Pictured, left to right: John Tracy, Past Chair Aerospace Division and Boeing liaison, who serves on ASME's Industry Advisory Board; Inderjit Chopra, Past Chair Aerospace Division; Amanda Wright-Lane, the great grand niece of the Wright brothers; Susan H. Skemp, ASME President; and R. Michael Hunt, ASME History and Heritage

PAST CHAIR'S MESSAGE: REFLECTION ON THE INDUSTRY

INDERJIT CHOPRA, PhD

The past two years have been troubling times for our profession. Beginning in late 2000, the downturn of Internet industry was accompanied by a slow-down of the overall economy, including a significant recession in industries such as aerospace. The terrorist attacks on the World Trade Center and the Pentagon on September 11, 2001 inflicted further damage on the overall economy, including an apparently irreparable threat to the profitability of the airlines industry (over $10 billion in losses in 2002). As a result, the commercial side of the aeronautics industry suffered a major blow. The present fiscal year has been a troubling one as well, with the uncertain environment caused by the Iraq conflict further worsening the economic atmosphere and discouraging air travel. And as if that is not enough, the recent appearance of SARS has started worsening what appears to have been a very slow economic upturn. Even though this problem is primarily focused in Asia, it has already started exerting an enormous negative impact on the airline industry throughout the world.

In these times, it is important to remember that aviation is an integral part of our economy (over $1 trillion of activity per year, 9% of national gross product and 11 million work force), a key component of our national defense, and an essential backbone of day-to-day life. While the demands on both civil and military aviation services are increasing, the national investment in aeronautics research and technology continues declining (reduced by over 30% in the last four years).

If we aspire to maintain our global leadership in aeronautics in the 21st century, we need to pay special attention to the critical underpinnings of aerospace, and reaffirm our future vision of this important technology. To this end, let us examine the state of affairs in research, education and industry in the aerospace field.

Research

During the past several years, there has been an enormous slowdown in the civilian aeronautics research budget. NASA has gone though major turmoil, with a severely reduced program in the traditional aeronautical sciences. Many of NASA's major and unique experimental facilities are being eliminated due to shortage of funds. At the same time the NASA work force is aging (the average age is over 51 years). Those who interact with NASA personnel report that many NASA employees are becoming disillusioned day by day due to this uncertain environment.

Congress routinely expresses concern about the state of affairs in aeronautics, but appears to show reluctance to change the situation. The new leadership at NASA has made strong statements about breaking this downward spiral, but real changes are hard to discern. Instead, there has been a trend at NASA in renaming or misnaming programs, and branding some important ongoing programs as "mature" in order to transfer funds to other agency priorities. More often than not, high quality programs at NASA are not getting the recognition or respect that they deserve, either within the agency or from the outside community.

The state of research in DoD laboratories is no better. A graying work force (average age of 53 years), shortage of funds, missing leadership and non-challenging environment have already eroded expertise in key research areas and also significantly diminished experimental capabilities. There are many excellent projects and people working at some of the DoD laboratories, but once again they are not receiving the attention they deserve. The only bright spot is an increasing DARPA budget, which is slowly expanding its role into aerospace discipline. However, most of their programs are short-term and developmental in nature.

In contrast to the American experience, the European Union has been expanding its research activities in the aerospace discipline. Observers have noticed that their research programs have become more methodical, well planned and longer-range than comparable US programs. In fact, Europe has already established technical leadership in some of the most promising aerospace research areas.

We must remember that the real benefits of basic research show up many years after laboratory development (sometimes decades). Because of this, the damage caused by having an inadequate basic research component is less visible immediately, but will show up in irreversible consequences many years later.

At this stage, it may still be possible to recover from our present scenario and change the future course of aeronautics in the US with both infusion of talent and funds plus pro-active government and vibrant programs. Rest assured that that there are plenty of new innovations and new frontiers to be found in research, and these will surely lead to advanced next-generation aircraft if allowed to flourish. However, doing so will require profiles of wisdom and extraordinary technical leadership and courage.

Education

The nation is experiencing a diminishing pipeline of qualified undergraduate and graduate students. Since 1990, the US graduates at the bachelor and master degree levels in aerospace engineering have dropped by 47% and 39%, respectively. The recent collapse of the Internet economy has resulted in some positive effects on aerospace and other engineering disciplines. As a result, there has been a small increase of enrollment in both undergraduate and graduate programs in aerospace engineering. Not only has the number of students increased, but also, more importantly, the quality of incoming students has increased significantly during the past two years.

To address the future challenges of aviation, the education system needs toadapt a new paradigm of a vigorous andvisionary curriculum in aeronautics. Thisrequires a concerted partnership amongacademia, industry and government. Atthis time, undergraduate education acrossthe country is being watered down withthe adoption of lower credit hours, therequirement for more topics coverage, andless well-equipped K-12 students (in mathand science). As a result, many have complained of an under-emphasis of funda-mentals and in-depth understanding. Thetrend towards replacing traditional aero-space topics with information sciencesmay be a timely bandwagon, but if itresults in the loss of our core capabilities itmay have serious negative consequences.

We should not lose sight of the fact that aerospace engineering education requires a comprehensive understanding of various sub-disciplines (aerodynamics, structures, propulsion and flight mechanics). One positive move would be to revive our undergraduate curricula with more emphasis on fundamentals and vigorous practice with design tools. Graduate education is more focused but requires sponsored

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PAST CHAIR

continued from page 2

research from government and industry for its survival. To make the aerospace educational base vibrant, we need to nurture and support basic aeronautics research.

Industry

During the past two years, there has been a significant reduction in the commercial side of the aeronautics industry. However, on the military side, there has been a small but noticeable increase. There have been few new platforms under development. Though it may be too early to tell, the war in Iraq does not seem to have revived the aerospace industry. The average age of military aircraft is rising at an alarming rate. It is becoming less cost effective to maintain an older aircraft than invest in a brand new one with more efficient propulsion system, superior performance and increased reliability. Again, budgetary constraints and bureaucratic bottlenecks are diminishing the whole acquisition process.

The global aviation market share for the US is declining rapidly because of inadequate R&D investment, less-enthusiastic government role, lack of timely insertion of advanced technology, short-term industrial focus (over emphasis of quarterly balance sheet) and inefficient manufacturing infrastructures. On top of it, the work force in industry is graying rapidly, too (average age about 50 years and 27% workforce is eligible to retire by 2008). Two decades ago, we started seeing manufacturing jobs moving overseas. Today we are observing that even white-collar jobs are moving offshore. On the other hand, recognizing the value of high-paid, high-tech aviation jobs, the European Union is becoming more aggressive and rapidly capturing the global air transportation market. For example, Airbus won over 50% of the new aircraft orders last year. There are far fewer new development projects in aviation in the US today. To invigorate the workforce and safeguard the industrial base, it is absolutely necessary for government to foster new challenging, focused developmental projects.

Has the aerospace discipline seen the bottom? Right now, it is not clear. Let us hope that senior management and Congress start paying more attention to this very critical technology. If we expect a positive trade balance of aviation products ($26.7 billion in 2000), we need to show our seriousness and fix the problem. It is a technology in which the government needs to play an active role in order to establish an atmosphere of innovation and creativity and aspire for a sustained international leadership. NASA, DoD, and FAA should join hands to map out strategy for new initiatives to address challenges and barriers that may be key to develop the next generation revolutionary vehicles. This requires a state-of-the-art educated work force and increased and sustained investment in aeronautics. Hopefully, more than a symbolic change, a national commitment and focused vision of aeronautics will produce a bullish atmosphere that may change the destiny of this discipline. In this centennial year of the Wright Brothers' historic flight, it is vital that the nation makes a solemn commitment to the aeronautics profession, to revitalize the aerospace industry so that it can continue to pursue a global leadership in this cutting edge technology. ■

ONGOING PROGRESS IN THE FIELD OF ADAPTIVE STRUCTURES AND MATERIAL SYSTEMS ■ GREG ADAMS

Research in the area of adaptive structures continues to play a dominant role in both industrial and academic circles. DARPA and NASA have both initiated significant efforts in morphing aircraft technology. The DARPA Morphing Aircraft Structures (MAS) Program seeks to create and advance enabling technologies and ultimately design, build, and demonstrate a seamless, aerodynamically efficient, aerial vehicle capable of radical shape change. The NASA Morphing Project seeks to develop and test technologies and concepts that will be used to make efficient, adaptable air vehicles.

The major areas of research include smart materials, adaptive structures, micro-adaptive flow control, and biologically inspired flight systems. The long-term vision for the program is to provide technologies for aerospace vehicles that efficiently adapt to diverse, multi-variable conditions in flight. Other ongoing Adaptive Structures efforts include the DARPA-sponsored, Compact Hybrid Actuator Program (CHAP) as well as several related SBIR topics.

CHAP will employ smart material driving elements to create a new class of efficient, high-energy density actuators in a package that is smaller and lighter than conventional hydraulic and electromagnetic actuators with similar power ratings. These new actuators could lead to considerable weight savings and reduced complexity and maintenance in smaller aircraft and have applications to the control of new types of hypersonic missiles. Significant developments include micromachined teeth and ratcheting mechanisms for adaptive optics applications, a thin-film shape memory alloy-driven hydraulic pump for missile guidance and control, working prototype concepts for chemo-mechanical actuators, prototype mechanical and non-mechanical valves for smart material-driven hydraulics.

Related DARPA SBIR projects are addressing piezoelectric motors and high temperature shape memory alloys. In addition to these DARPA efforts, funding from NASA, NSF, AFOSR, ARO, and ONR continues at fairly significant levels, an example being the ONR Ferromagnetic Shape Memory Alloy Multi- University-Research-Initiatives (MURI) at U. Md., U. Minn., UCLA, and UCSD. The evolution of new materials - single-crystal piezoelectric and ferromagnetic shape memory alloys with new concepts motors, energy harvesting, space applications - promises significant research and engineering opportunities in the fields of Aerospace Engineering in the near future. ■

SMART STRUCTURES & MATERIALS ACHIEVEMENT AWARD

This award is presented annually to an individual(s) whose vision and leadership in the research, development and application of smart structures and materials concepts has led to significant advances in the state-of-the-art of these interdisciplinary technologies. The SPIE Smart Structures and Materials Symposium Planning committee members make selection of this award. At the 2003 SPIE Symposium, this award was given to Dr. Daniel J. Inman of Virginia Tech for leadership in education, research, and sustained contributions to the advancement of Smart Structures and Materials technologies. ■

PROPULSION TECHNICAL COMMITTEE

The Propulsion Technical Committee consists of members from industry, universities and government who are engaged mainly in propulsion research and development activities. The committee deals with all aspects of vehicle propulsion including solid, liquid, ramjet, combined cycle, nuclear and hybrid rocket engines.

The Committee's main focus is developing and presenting technical papers at the Joint Propulsion Conference & Exhibit to promote the objectives of the propulsion-oriented technical committees of each of the sponsoring societies. This year, the 39th AIAA/ASME/ SAE/ASEE Joint Propulsion Conference & Exhibit took place in Huntsville, Alabama. "Powered Flight - The next Century" was the theme. The conference featured over 750 papers covering all aspects of propulsion systems. The ASME Propulsion Best Paper Award offers national recognition to the author of one of the papers presented in one of the ASME sponsored sessions. ■

STRUCTURES AND MATERIALS TECHNICAL COMMITTEE

The Structures and Materials Technical Committee focuses on advances in structures and materials for advanced aerospace systems. The committee's primary contributions are through two conferences: the International Mechanical Engineering Conference and Exhibition (IMECE) and the AIAA/ASME/ASCE/ AHS/ASC Structures, Structural Dynamics, and Materials Conference (SDM). At the 2002 IMECE in New Orleans in November, the Committee organized mini-symposia in Aeroelasticity, Composites in Space, Durability and Damage Tolerance, Design and Manufacturing of Composites, and Failure Prediction in Composites. Because of shared interests, the Committee frequently co-sponsors mini-symposia with the Materials and Applied Mechanics Divisions. The Committee is making plans for 13 sessions at the 2003 IMECE in Washington, D.C. These sessions cover topics that range from functionally graded materials to hypersonic structures. To foster high quality presentations and papers, the Committee sponsors the ASME/Boeing best paper award at SDM. The winning paper from the 2002 SDM conference was "Large Deformation Atomistic-Based Continuum Analysis of Carbon Nanotubes", co-authored by Marino Arroyo and Ted Belytschko. ■

CREW SYSTEMS TECHNICAL COMMITTEE

PHIL SPAMPINATO

The ASME Crew Systems Committee organized 10 sessions at the 33rd Annual International Conference on Environmental Systems (ICES). Set in the beautiful setting of Vancouver, BC, Canada from July 7-10, 2003, representatives from industry, government, and academia exchanged information on the critical issues and newest advancements related to human life support, vehicle thermal control, and extravehicular technology for spacecraft, aircraft, ground, and submarine systems. Four days of intensive sessions offered participants a neutral forum in which to present their research and achievements to an international audience. In addition to the high-quality technical information, the conference also provided the ideal networking opportunity. ICES is organized in cooperation with SAE Aerospace, the American Institute of Aeronautics and Astronautics, the American Institute of Chemical Engineers, the American Society of Mechanical Engineers, and an International Committee. ■

2002 IMECE PROGRAM REPRESENTATIVE'S REPORT

AJIT ROY

The Aerospace Division hosted six very timely symposia at the 2002 IMECE, New Orleans, Nov 17-22, totaling 26 sessions. To encourage cross-division activity in advancing science and technology, four of the six symposia were jointly hosted with Materials and Applied Mechanics Divisions. Thirteen sessions were spread out in several session topics in 2002 ASME Adaptive Structures and Materials Systems Symposium, ranging from shape memory alloys, active polymers, to controls of adaptive structures. Dr. J. Shaw, University of Michigan and Dr. M. Frecker, Penn State University, were the lead organizers of the symposium. Activities also included the annual wine-and-cheese reception, which Prof. Greg Carman sponsored.

Six sessions from Aero Division were dedicated to the 5th Intl. Symposium on Fluid-Structure Interactions, Aeroelasticity, and Flow-induced Vibration & Noise, organized by Prof. M. Paidoussis, McGill University, and Prof. P. Friedmann, University of Michigan. Aero and Applied Mechanics Divisions jointly sponsored the symposium.

Prof. A. Waas, University of Michigan organized a three-session symposium on Failure Prediction in Composite Materials and Composite Structures. Dr. A. Roy (AFRL), Prof. J. Whitcomb (Texas A&M University) and Dr. S. Donaldson (AFRL) organized Composites for Space Symposium, jointly with Materials Div. Composite Materials Committee. The Aerospace Division also shared one session each to jointly host two other symposia, Design & Manufacturing of Composites (Prof. Julie Chen, U. of Massachusetts – Lowell, and U. Vaidya, University of Alabama at Birmingham) and Durability of Composites (Prof. A. Pelegri, Rutgers University) with Materials Division as well. ■

ADAPTIVE STRUCTURES AND MATERIAL SYSTEMS TECHNICAL COMMITTEE

ALISON FLATAU, PH.D., P.E.

The Adaptive Structures and Material Systems Technical Committee supports four major conferences in the area of smart materials and structures. These four conferences are the ASME Adaptive Structures and Materials Systems Conference at the annual International Mechanical Engineering Conference & Exposition (IMECE), the International Conference on Adaptive Structures and Technologies (ICAST), SPIE International Symposium on Smart Structures and Materials, and the AIAA Adaptive Structures Forum. In addition to these four conferences, the committee is in charge of choosing two best paper awards and the coveted Adaptive Structures and Material Systems Prize. ■

INTERNATIONAL CONFERENCE ON ADAPTIVE STRUCTURES & TECHNOLOGIES (ICAST)

ICAST is in its thirteenth year of providing an international forum for discussing the most recent advances in Adaptive Structures and Material Systems. The conference was held Potsdam Berlin, Germany during October 7-9 2002. Dr. Elmar J. Breitbach of German Aerospace Center hosted the 50-paper conference. The objective of the 13th ICAST was to extend and further promote scientific research, innovative exchanges and beneficial interactions among the global community engaged in the field of adaptive materials, structures and technologies.

Traditionally, ICAST is a non-parallel sessions, three-day meeting focused on a variety of multi-disciplinary subjects that are essential components of adaptive structures and material systems. In addition to regular presentations, there were three invited lectures to review the state-of-art on various research topics in this field and a small poster session. Pioneers gave two popular topics and these were: "Recent Progress in high strain electro-active actuator materials" by Professor L. Eric Cross (Penn State) and "Use and trends of adaptive structures in aeronautics and space technology" by Dr. Paolo Santini (University of Rome "La Sapienza"). Program managers also made several industry and government lab presentations to show the past, present and future R&D activities in adaptive structures and smart materials. ■

ADAPTIVE STRUCTURES AND MATERIAL SYSTEMS PRIZE

The Aerospace Division Adaptive Structures and Material Systems Technical committee established this award to honor a member of the technical community who has made significant contributions to the advancement of the sciences and technologies associated with adaptive structures and/or material systems. The award recognizes scientific contributions as measured by significant innovations, as well as service to the scientific community, and leadership that the individual has demonstrated to advance the science. The recipient of the prize this year is Dr. Ephrahim Garcia. Professor Garcia joined the faculty at Cornell University in 2002 where he leads a group of investigators developing intelligent machine systems from the micro to mesoscale, bio-inspired robotics and flight vehicles, and adaptive aerospace structures. Dr. Garcia served as a program manager in the Defense Sciences Office at the Defense Advance Research Projects Agency (DARPA) from 1998 to 2002. From 1991 to 1998, he was a professor at Vanderbilt University in Nashville, Tennessee. Among his awards and honors, Dr. Garcia was named an Office of Naval Research Young Investigator, appointed a Presidential Faculty Fellow, twice received Summer Faculty Fellowship awards from the Air Force Office of Scientific Research, and a faculty fellowship from the Central Intelligence Agency. ■

ASME ADAPTIVE STRUCTURES AND MATERIAL SYSTEMS BEST PAPER AWARDS

The annual best paper award has been established to recognize outstanding papers in the area of adaptive structures and material systems appearing as an authored journal publication or conference proceedings. Over 20 papers were nominated in the category of Adaptive Structures and Materials Systems and a review panel of three individuals was involved in reviewing the papers. The winner of 2001 ASME Adaptive Structures and Material Systems Best Paper Award in the Materials and Materials Systems area is "Micro-mechanics of Actuation of Ionic Polymer Metal Composites (IPMCs)," by Sia Nemat-Nasser of CEAM/UCSD which was published in the Journal of Applied Physics. This award was presented in San Diego at the 2003 SPIE Conference on Smart Structures and Materials in March. If you wish to nominate a paper in the materials area, and/or in the area of structures and structural dynamics, please contact Professor Chris Lynch at Georgia Tech (lynch.admin@me.gatech.edu). ■

ADAPTIVE STRUCTURES AND MATERIAL SYSTEMS SYMPOSIUM

The AERO Adaptive Structures and Materials Systems Technical Committee will again be sponsoring the Adaptive Structures and Material Systems Symposium at the 2003 IMECE in Washington, DC, Nov. 15-21. Professor Mary Frecker of Penn. State University and Professor Don Leo of Virginia Tech will organize it. This symposium brings together the world's experts to discuss the latest breakthroughs in smart materials, the cutting edge in adaptive structure applications and the recent advances in both new device technologies and the basic engineering research exploration. If you would like to contribute a paper to the 2004 conference, please contact Professor Mary Frecker at Penn. State (mxf36@psu.edu). ■

SPIE/ASME SMART STRUCTURES & MATERIAL SYSTEMS STUDENT PAPER & PRESENTATION COMPETITION

This award was developed to recognize outstanding student participation in technical papers and presentations at the SPIE Smart Structures and Materials Conference. The competition grew from just over 20 submissions last year to over 45 this year. A panel of eight judges from the Technical Committee assisted with review of the extended 1000 word abstracts from which six students were selected to compete for cash prizes sponsored by CSA Engineering, Rhombus Consultants Group, and the Boeing Company. William Oates from Georgia Tech earned the first place and $500 cash prize for presentation of his paper "New Approach to Solving Crack Tip Stress Fields for Piezoelectric Materials," with LeAnn Faidley of Ohio State University and Michael Philen of Penn State University tied for second place awards. Three runner-up students also received cash awards, and an additional six students received certificates of honorable mention. If you wish to compete in or assist in sponsoring the 2004 student paper competition, please contact Prof. Arnold Lumsdaine of Univ. Tenn (alumsdai@utk.edu). ■

"CELEBRATION OF FLIGHT" TAKES SHAPE AT ASME CONGRESS 2003

ASME's celebration of 100 years of powered flight continues throughout the year with "Celebration of Flight," a special plenary session at the 2003 ASME Congress.

The session will feature a panel of aviation industry leaders including Dr. Mal O'Niell, vice president & chief technical officer, Lockheed Martin, and Hank Queen, vice president of Engineering and Product Integrity, Boeing Commercial Airplanes. The panel will also include a top executive from NASA. John Falcioni, editor in chief of Mechanical Engineering magazine, will moderate the session.

Immediately following, there will be a reception at which Mechanical Engineering magazine will unveil its commemorative issue "100 Years of Flight", and ASME will present an honorary Spirit of St. Louis Medal. The award is presented annually for meritorious service in the advancement of aeronautics and astronautics.

"Celebration of Flight" will be taking place on Sunday, November 16, from 5:45 pm-7:00 pm at the Washington Marriott Wardman Park Hotel and is open to everyone attending the 2003 ASME International Congress and RD&D Exposition, November 16–21, in Washington, D.C. http://www.asmeconferences.org/congress03/.

In the meantime, join the celebration of history and achievement since the Wright Brothers' first successful flight at http://www.asme.org/events/flight/, a website launched by ASME offering access to articles, historical references and how-to sections related to flight. The site also includes links to listings and information about television programs that pertain to the centennial of flight. ■

ASME AND OFFICE OF SCIENCE AND TECHNOLOGY POLICY SPONSOR WORKSHOP ON AERONAUTICS AND AVIATION TECHNOLOGIES

ASME's Aerospace Division, in collaboration with the Society of Automotive Engineers (SAE), recently organized a workshop on Aeronautics and Aviation Technologies sponsored by the Office of Science and Technology Policy (OSTP). The workshop, convened at the White House Conference Center, focused on near- mid- and long-term aeronautics and aviation technologies. Experts from key agencies, academia, and industry were invited to discuss technologies that the United States should pursue in areas such as propulsion, aerodynamics, structures and materials, flight mechanics and controls, information technology and design, and avionics. The workshop was organized to discuss research and development priorities relating to the future of the U.S. aeronautics and aviation enterprise. Additional information about aeronautics and aviation R&D is available online at: http://www.asme.org/gric/engineeringpolicy/Aviation/Aero.html for more information, contact Kathryn Holmes at holmesk@asme.org. ■

SMART STRUCTURES & MATERIALS ACHIEVEMENT AWARD

This award is presented annually to an individual(s) whose vision and leadership in the research, development and application of smart structures and materials concepts has led to significant advances in the state-of-the-art of these interdisciplinary technologies. The SPIE Smart Structures and Materials Symposium Planning committee members make selection of this award. At the 2002 SPIE Symposium, this award was given to Drs. Vijay K. Varadan of Penn State University and Richard O. Claus of Virginia Tech. for pioneering research contributions in the field of Smart Structures and Materials, as evidenced by innumerable publications on a wide variety of applications, patents, education of graduate and undergraduate students in cutting edge developments, continued activism in the professional community, technology transfer and founding of companies and international outreach. Rick and Vijay are two of three founders of the SPIE Smart Structures and Materials Conference dating back to 1993 and have stayed involved and active leaders of what has evolved into the premier international conference in this field. Year after year they have continued to organize conferences, introduce new topical areas, and to offer short course/technical reviews. They also started the International Journal of Smart Structures & Materials (IOP) and continue to be Editors-in Chief of this successful journal.■

The scientific theory I like best is that the rings of Saturn are composed entirely of lost airline luggage. **—Mark Russell**

INTERNATIONAL SYMPOSIUM ON SMART STRUCTURES AND MATERIALS

The International Society for Optical Engineering (SPIE) held its 10th Annual International Symposium on Smart Structures and Materials, consisting of nine different conferences at the Newport Beach Marriott Hotel and Tennis Club in Newport Beach on March 1-6, 2003. Both ASME Adaptive Structures and Material Systems Committee and SPIE jointly sponsor this Symposium. Over 645 papers in the Smart Structures side of the conference and over 165 papers were presented through the 8th Annual Nondestructive Evaluation for Health Monitoring and Diagnostics Symposium held jointly with this conference. Chair and Co- Chair of the Symposium were Drs. Marc E. Regelbrugge of Rhombus Consultants Group and Vasundara V. Varadan of Pennsylvania State University. The Symposium was co-located with SPIE's 8th International Symposium on Nondestructive Evaluation and Health Monitoring of Aging Infrastructure. Over 900 attendees attended both Symposia. ■

WRIGHT FLYER III

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every bit as much genius, dedication, and hard work as did those first, brief leaps into the air at Kitty Hawk. Wright Flyer III, the Wrights' third airplane, looks much like their first Flyer, the one that showed the world that it could fly, but a number of significant differences make this the machine that made the world want to.

Humans dreamed of flight among the birds since ancient times and attempts were made by many; however, it remained for two unassuming brothers, Wilbur (1867-1912) and Orville (1871-1948) Wright, bicycle mechanics from Dayton, Ohio, to methodically work through the problems associated with flight—lift, power, structural strength, and control—and produce a machine that could accomplish the task. For four years the brothers systematically tackled these problems and overcame them one by one. Along the way they provided a model for aeronautical research and generated information that would help form the foundation for what we now call aeronautical engineering.

The significance of these first flights cannot, and should not, be minimized. They were, after all, the achievement of the lofty goal that many great minds had sought in vain for centuries The Wrights, however, were practical men, and even while announcing their success and taking preliminary steps to protect their invention, they realized that their quest was far from over. The Wright Flyer had indeed flown, but it had flown basically in a straight line and only a few feet above the ground. This was far short of the capabilities needed in a practical, useful airplane. To be truly practical, an airplane would have to be able to climb to an altitude that would clear trees and buildings, and it would need to be fully maneuverable so that a pilot could turn it and fly in any direction at will. In addition, a practical airplane would have to be reasonably safe and easy to control. Returning to Dayton in time for Christmas, the Wrights realized that they were at a crossroads. The bicycle shop was their livelihood; they had been pursuing their dream of flight as a sideline. Now that they had achieved what they thought would be their goal, they recognized how much development work still remained to be done. If they were going to undertake that—and to realize any financial reward for their work—the brothers had to make a full-time commitment to aviation. They decided to turn the shop operations over to Charles Taylor (1869-1956), the machinist who had built the Wright Flyer's 12-horsepower gasoline engine, and devote all their time to perfecting their airplane. In addition to managing the shop, Taylor would continue to contribute his talents to flying machine development as needed.

Attendees at the Landmark Ceremony for the Wright Flyer III Historic Mechanical Engineering Landmark on Thursday, Feb. 20 during Engineers Week 2003 are shown in the accompanying photograph. ■

UPCOMING CONFERENCES

October 7-9, 2003

Seoul National University, Seoul, Korea

14th International Conference on Adaptive Structures and Technologies

Conference Chair: Prof. Seung-Jo Kim

November 16-21, 2003

Marriott Wardman Park & Omni Shoreham Hotels, Washington, D.C.

ASME International Mechanical Engineering Congress

Research Development and Design Expo (RD&D)

Defense Research and Engineering Conference and Exposition (DREX)

http://www.asme.org/congress

April 19-22, 2004

Wyndham Hotel, Palm Springs, CA

12th AIAA/ASME/AHS Adaptive Structures Conference

Conference Chair: Dr. Gregory Agnes

45thAIAA/ASME/ASCE/AHS/ASCStructures,Structural Dynamics and Materials Conference

Conference Chair: Mr. Patrick J. Goggin

SPIE's 11th Annual International Symposium on Smart Structures and Materials

Conference Chair: Prof. Vasu Varadan

Co-Chairing 5 out of 9 Conferences ■

AEROSPACE DIVISION- 2003-2004

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Aerospace Propulsion Technical Committee
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