

FROM THE CHIEF HISTORIAN

Our office has been quite busy recently on a variety of fronts.

Our division recently became part of the Office of Communications' Public Outreach organization. Alan Ladwig, whom many of you probably know, is the Public Outreach leader. The conceptual fit for the History Division into this larger group is very good and harkens back to when the History Division reported to Alan in his prior capacity as the Associate Administrator for Policy and Plans. Jane, Nadine, and I have moved our desks to be colocated with other Public Outreach personnel, while our National Aeronautics and Space Administration (NASA) Historical Reference Collection has remained in place.

In terms of personnel, NASA should be advertising for a permanent NASA Chief Historian soon. I am also very pleased to have two excellent undergraduate interns aboard this summer. Tayler Lofquist is a senior from the George Washington University who is especially interested in Cold War history. Christopher Cohen is a history major at Brown University who recently finished his sophomore year. We were also sorry to see two other interns, Taylor Johnston and Thomas Simpson, finish their terms this spring because they completed so much excellent work.

In May, we had our 2010 NASA History Program Review at the Kennedy Space Center (KSC). Those of us who were able to come a day early had the opportunity to take a special tour of the Cape Canaveral Air Force Station (CCAFS) on Tuesday, 11 May. We saw such historic sites as the blockhouse and launchpad for Alan Shepard's first U.S. spaceflight (inter-

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NEWS FROM HEADQUARTERS AND THE CENTERS

Headquarters

Jane Odom continues to evaluate and acquire new material for the Historical Reference Collection (HRC). She appraises items for historical value, directs the subsequent processing of collections, and answers reference requests. Jane is publishing speeches of key officials in NASA's history online; she expects them to be available by mid-summer at <https://mira.hq.nasa.gov/history/>. Recently, she helped with the preparation of the External Relations and the Public Affairs file plans, as required by the Records Management program. Additionally, she dealt with a Mandatory Declassification Review and cleared a half-dozen foreign nationals from different countries coming here to do research in the NASA History Division.

Collectively, Colin Fries, John Hargenrader, and Liz Suckow share reference duties, answer inquiries received by e-mail, assist walk-in researchers, and help Jane with Freedom of Information Act (FOIA) requests. They have completed the processing of a collection received from the Boston Museum of Science and have integrated the historically significant materials into the HRC. The collection consists of subject files kept by the deputy director, Walter Webb. Also, they are working to preserve our hard-copy collection by photocopying deteriorating news clippings, replacing worn

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estingly, these two are perhaps only 100 yards apart!) and the somber Launch Complex 34.

We started our Program Review in earnest on Wednesday morning with an excellent tour of KSC. This included visits to the Space Shuttle Main Engine Processing Facility, the Orbiter Processing Facility, and a drive-around and “photo op” near the launchpad where *Atlantis* was being readied for its launch on the STS-132 mission.

Joan Deming, an archaeologist who works on historic preservation at KSC, started the afternoon and meeting off with a very interesting presentation on the history of the KSC and CCAFS areas prior to the Space Age. We then had overview briefings on the NASA History Program and the NASA Historical Reference Collection at Headquarters before touring the nearby Astronaut Hall of Fame.

On Thursday, we had briefings from the history points of contact at the Field Centers and discussed Shuttle and Constellation history efforts, among other topics. I also briefed the attendees on the more than 40 active book projects currently in our production queue. We also had separate, concurrent sessions on e-books and the digitization of archival collections.

Then, on Friday, we discussed planning for some upcoming anniversaries such as the 35th anniversary of the Apollo-Soyuz Test Project, the 50th anniversaries of Yuri Gagarin’s and Alan Shepard’s first flights, the 30th anniversary of the first Space Shuttle flight, and the 50th anniversary of John Glenn’s first spaceflight. We also heard excellent presentations from Kathleen Callister, NASA’s newly appointed Historic Preservation Officer, on her efforts to coordinate our communities’ respective work and from Alex MacDonald, who is from Carnegie Mellon University and Ames Research Center (ARC), on his provocative and insightful economic history of U.S. space exploration prior to 1957. Please stay tuned on the 50th anniversaries of Gagarin and Shepard’s first flights, as we hope to stage a scholarly public conference on this subject next spring.

Last and certainly not least, all the attendees got to see the spectacular afternoon launch of STS-132 on Friday. This was a unique experience to remember, especially as the Shuttle program draws down.

Staging such a Program Review is always a challenging, but largely unheralded, endeavor. Doing this at KSC, with its usual scores of visitors, before one of the last Shuttle launches added two further levels of complexity. Nadine Andreassen deserves great recognition for the tremendous amount of work she put into organizing the logistics for the meeting, both from Headquarters and on the fly in Florida. We also clearly could not have had this meeting without the hard work and practical insights from Elaine Liston and Gregg Buckingham at KSC.

Overall, our NASA History Program Reviews are always productive. I was particularly pleased this time, however, to have a number of attendees at this Program Review beyond our Center history points of contact. The presentation by Michael Crnkovic and Cindy Miller from the Headquarters Communications Support Services Center (CSSC) on e-books, for example, was a provocative and useful way to address this relatively new trend. We also had the pleasure of hearing from John Byram of the University Press of Florida on his interest in publishing more space history titles. Paul Candela and Steven Crofoot also attended; stay tuned for a *Shuttle Flight Journal* from them next spring in time for the STS-1 anniversary

(akin to Eric Jones's *Apollo Lunar Surface Journal*, which we host on our Web site). I firmly believe that having a diverse mix of people from different professional and personal backgrounds, as well as different geographic locations, leads to very fertile discussions and a better shared understanding of our joint goals.

Thank you for all your interest and support of NASA history.

Stephen Garber

Acting Director, NASA History Division

News from Headquarters and the Centers (continued)

folders, and updating abstracts of folder contents. Preservation work is currently focusing on files in the following areas: Earth sciences, international cooperation and foreign countries, impact of the space program, and satellites and space probes.

Colin completed the processing of a collection of sources used in the *Exploring the Unknown* series and also an addition to our unpublished manuscripts collection. Liz and Colin completed the appraisal of a collection of Administrators' chronological correspondence files, ca. 1963–1978, copying historically significant items to add to existing subject files in the HRC. In addition, Colin continues to assist in maintaining the History Division Web pages. Colin and Liz updated the Apollo-Soyuz Test Project Web site for the forthcoming 35th anniversary.

Liz continues to appraise a 66-box collection borrowed from the Federal Records Center. This collection contains Office of Manned Space Flight correspondence and the papers of Surveyor Program Manager Benjamin Milwitzky. Liz has begun processing a collection of source material for the book *The Space Shuttle Decision* by Tom Heppenheimer. Liz continues to update the Headquarters oral history inventory available online at <http://history.nasa.gov/oralhistory/ohcatalog.htm>; she also enters descriptive information about the oral histories into the internal database.

John continues to verify photo dates in the Great Images in NASA (GRIN) database to make sure they conform as closely as possible to the dates the photos were taken after some errors were discovered in GRIN.

Ames Research Center (ARC)

Jack Boyd and Glenn Bugos are preparing a paper titled "Airmail as Analogy to Commercial Space" for the American Institute of Aeronautics and Astronautics (AIAA) Space 2010 conference. This will explore in greater detail the role of the National Advisory Committee for Aeronautics (NACA) in research to support airmail service in the 1920s and thus the development of commercial air transport in America. These insights may prove useful as NASA embarks on research to support the development of commercial spaceflight.

Lawrence Badash of the University of California, Santa Barbara, lectured on his new book, *A Nuclear Winter's Tale: Science and Politics in the 1980s* (MIT Press, 2009) on 2 March 2010 to a packed audience at the Space Science Auditorium—the building where the key research on nuclear winter was done.

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News from Headquarters and the Centers (continued)

Lisa Messeri of the Massachusetts Institute of Technology (MIT) Doctoral Program in History, Anthropology, and Science, Technology, and Society has been conducting research on Ames's efforts to generate maps of Mars.

Mars in 3-D is a half-hour documentary on the Martian landscape using images returned from the stereoscopic imager aboard the Viking landers in 1976. Elliott Levinthal of Stanford University, who served as Principal Investigator for the imager and narrates the film, donated his materials from the film project to the Ames History Office. These prints are now being remastered by a group led by John Chowning of the Stanford University Center for Computer Research in Music and Acoustics, where graduate students had composed the score for the film. Plans are to show the film at a music festival on computer-generated music.

Archivist April Gage generated a new workbook on procedures for digitizing documents and generating metadata. To road-test this digitization workbook, spring archives intern Lisa Zakharova from San Jose State University digitized and created metadata for 54 documents (2,421 pages) in the Pioneer Project Records (AFS8100.15A) and created MARC records for several collections. Archives interns Ratana Ngaotheppitak and Stephanie Jo Pierce come on board this summer to digitize portions of the Alvin Seiff Papers (PP05.22-AS) and process two small collections, one collection related to early virtual environment systems developed at Ames and a second collection of the papers of the late Bay Area aviatrix and NACA programming mathematician, Amelia Reid.

A finding aid for the Kenneth B. Wilton and Alfred L. Ercoline Bending Brake, 1964–1968 collection (PP09.07), is now posted on the Online Archive of California (OAC). Unique visitor access to the Ames finding aids on the OAC has climbed from 66 in 2007 to 1,167 in 2009, reflecting how useful it has become.

April also has compiled a survey of other information repositories on Ames. This includes not only the formal libraries, but also the configuration management files, program office collections of reprints, and glorified closets where researchers stash the data they use. One such repository is in the Simulation Sciences Building, which is proving useful as plans are being made to celebrate the 30th anniversary of the Vertical Motion Simulator.

We made two major additions to our Web sites. On the Ames historic properties Web site, to support the National Research Council (NRC) review of laboratory facilities, the History Office compiled data on the research capabilities of Ames buildings. We are currently investigating how to present the data mapped to our geospatial information systems. We also generated a brochure for a self-guided tour of the Ames campus, so that as visitors drive around, they can better appreciate the history and current efforts inside Ames buildings. In addition, on our internal Web site, we compiled all the research papers that have won the H. Julian Allen Award for the best technical paper by an Ames researcher.

We bid adieu to Jacqueline Nelson, who very ably, and with great geniality, supported the History Office for the past four years. She is still nearby as an account manager with the NASA Research Park (NRP). One NRP resident firm, Bloom Energy, recently announced its new green-energy technology with great fanfare and constant reference to its historical origins in Ames's research on in situ resource utilization on Mars.

Jack Boyd was inducted into the Virginia Polytechnic Institute and State University Academy of Engineering Excellence. “These exemplary alumni,” noted Richard Benson, dean of engineering at Virginia Tech, “have lived their lives representing the spirit of *Ut Prosim*, Virginia Tech’s motto meaning That I May Serve.” And as a mark of the historic shift in Ames’s capabilities, Center Director S. “Pete” Worden received the Arthur C. Clarke Foundation Innovator’s Award for leadership in space exploration. “Like Sir Arthur,” said foundation chairman Tedson J. Meyers, “Pete Worden was in at the beginning of countless courageous departures—among them the Strategic Defense Initiative, the revitalization of civil space exploration and Earth monitoring, and programs to get mankind at a working distance from Near Earth Objects.”

Dryden Flight Research Center (DFRC)

Curtis Peebles continues work on his latest book, *The Forgotten X-Planes*, which will bring a new appreciation for the roles these vehicles played in advancing aviation. Also, *11 Seconds Into the Unknown: A History of the Hyper-X Program* has been accepted for publication by the AIAA, with an expected release sometime in 2011.

While at KSC for the annual history meeting, Peter Merlin wrote some entries for a new series of blogs that Dryden has begun carrying on its Web site. Recent contributors to the site include Center Director Dave MacBride and one of the engineers at the recent Pad Abort 1 launch at the White Sands Missile Range who provided a firsthand account of the launch. Pete took the opportunity to attend several events related to the launch of *Atlantis* not open to the public, and then he wrote about them as well as the launch. He also coordinated his time at KSC with Dryden Digital Learning Center Director David Alexander to work on some video material that David can use in later classroom activities.

Following the NASA history meeting, Christian Gelzer is looking into the requirements to reconfigure the truck-fairing manuscript and make it e-book compatible, which is possible since layout has not begun.

With off-site access to the History Office’s database around the corner, Betty Love will soon be able to enter data from her culling directly into the records rather than on paper. Fortunately, this will not reduce our chance to see her, since she must come out now and again to exchange sorted boxes for unsorted ones and brighten everyone’s day.

Glenn Research Center (GRC)

Congratulations to Glenn archivist Bob Arrighi (WYLE) on receiving the 2010 Annual NASA History Award for his outstanding achievements in historic preservation. He received his award at the annual NASA History Program Review at KSC in May.

Revolutionary Atmosphere, the long-awaited history of the Altitude Wind Tunnel, will be released this June. Details on obtaining copies of this book will be forthcoming from the NASA History Division. A short DVD documentary on the Altitude Wind Tunnel is also in the production stages. This DVD will be available later this year from the Glenn History Office. It also will be available for viewing on the Altitude Wind Tunnel history Web site at <http://lawt.grc.nasa.gov/>.

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News from Headquarters and the Centers (continued)

Bob Arrighi (right) receives the 2010 Annual NASA History Award from Acting Chief Historian Steve Garber (left).

Jet Propulsion Laboratory (JPL)

Erik Conway's long-in-the-works manuscript on the history of robotic Mars exploration is now in internal review. Once it has met with internal approval, he will send it to the Headquarters History Division for its next round of evaluation.

Meanwhile, Erik is slowly working through JPL's records of the Surveyor program of the 1960s. Surveyor became the first U.S. planetary lander and performed as a systems contract with Hughes Aircraft. It was the second-most-expensive robotic planetary program (in adjusted dollars, barely less than the Viking mission of the 1970s) and has never been the subject of a history.

In January, Erik gave a presentation at the American Meteorological Society meeting in Atlanta, Georgia, on the 50th anniversary of the weather satellite, which was flown by Goddard Space Flight Center. He presented a summary of his new book, *Merchants of Doubt*, at the Columbia History of Science Group meeting in Washington State in March. He also attended the annual NASA History Program Review in Florida. It was great to see all his fellow historians and stand under the belly of *Endeavour* in the Shuttle Processing Facility!

Most recently, Erik cochaired a California Institute of Technology (Caltech) conference on science and the Cold War with Naomi Oreskes and John Krige. He and Oreskes will be coediting the resulting volume of essays. His own paper will examine the way NASA responded to the changing tenor of the Cold War within its science programs, moving into new research areas as certain areas (such as planetary science) became less politically attractive.

Erik continues to do some writing for the NASA Climate Web site at <http://climate.nasa.gov>, which won the People's Choice Webby Award for a science site this year.

Langley Research Center (LaRC)

Langley's hometown, Hampton, Virginia, is celebrating its 400th anniversary in 2010, and Langley is joining the celebration. On 6 March, Langley brought an album of historic photos and some current exhibits to the Hunt for Hampton History event. Several retirees and adult children of retirees stopped by the exhibit to share their memories of the NACA and NASA.

The city compiled 100 oral histories into a four-DVD set. Included from NASA Langley were Roy Harris, former aeronautics director; Dr. Joel Levine, who spoke about Viking; Barry Meredith, who discussed Langley's Space Shuttle work; Kathy Barnstorff, who talked about more recent aeronautics research; Dr. Bruce Wielicki, who discussed atmospheric science; Marshall Smith, who talked about Ares; and Gail Langevin, who talked about the Space Task Group and the Mercury astronauts.

Hampton is erecting a series of history markers around the city. Two markers commemorate Langley. One marker documents Langley's accomplishments from the NACA days to the present. A second marker documents the Mercury program accomplishments and informs the reader about city landmarks that honor people who contributed to the program. The city's main traffic thoroughfare, Mercury Boulevard, commemorates the program that put Americans into space. Six bridges that span a creek running through the city honor Gus Grissom, John Glenn, Scott Carpenter, Gordon Cooper, Wally Schirra, and Deke Slayton. The road to Langley is named Commander Shepard Boulevard in honor of the first American in space. An elementary school is named after Christopher Kraft, who was born and raised in Hampton. A third sign tells the story of Chesterville, a plantation dating back to the 1600s. The ruins of the plantation are located between Langley's Aircraft Landing Dynamics Facility and Brick Kiln Creek. Chesterville was the birthplace of George Wythe, a signer of the declaration of independence and a law professor at the College of William and Mary, whose students included Thomas Jefferson and Chief Justice John Marshall.

City artist Gail Duke visited the Center to gather images for inspiration for a painting that depicts Langley's history. The painting will be adapted as cover art for a souvenir magazine commemorating Hampton's anniversary.

Marshall Space Flight Center (MSFC)

Text, photos, and videos about the history of MSFC are featured in a new online interactive timeline on the Center's 50th anniversary Web site at http://history.msfc.nasa.gov/50th_anniversary/timeline.pdf.

"The timeline starts with the events associated with the opening of Marshall on July 1, 1960," said Marshall Historian Mike Wright. "It features at least one significant event for every year up until the present." He said that the timeline was a work in progress. "We will be adding new videos and photos throughout the year and beyond."

Molly Porter, from Deltha-Critique, and Roena Love, from the Marshall History Office, developed the timeline.

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News from Headquarters and the Centers (continued)

Stennis Space Center (SSC)



The Stennis History Office assisted with the recently published monograph *Remembering the Giants: Apollo Rocket Propulsion Development*.

On 25 April 2006, SSC hosted a series of lectures on Apollo propulsion development entitled "On the Shoulders of Giants." This monograph is a transcript of the seminars held as part of the celebration to mark the 40th anniversary of the first rocket engine test conducted at the site, known then as the Mississippi Test Facility (MTF).

The event's moderator, Steven C. Fisher of Pratt & Whitney Rocketdyne (PWR), co-edited *Remembering the Giants: Apollo Rocket Propulsion Development*, Monographs in Aerospace History, No. 45, along with NASA's

Dr. Shamim A. Rahman, Deputy Director for the Engineering and Test Directorate at Stennis. The seven presenters represented in the monograph and their topics include the following: Robert Biggs, PWR, "F-1 Saturn V First Stage Engine"; Paul Coffman, PWR, "J-2 Saturn V 2nd and 3rd Stage Engine"; Gerald R. Pfeifer, Aerojet, "Attitude Control Engines"; Tim Harmon, PWR, "SE-7 & SE-8 Engines"; Clay Boyce, Aerojet, "AJ10-137 Apollo Service Module Engine"; Gerald Elverum, TRW, "Lunar Descent Engine"; and Tim Harmon, PWR, "Lunar Ascent Engine."

The monograph is a collection of reminiscences by Apollo experts involved in the early development and testing of the Saturn V Moon rocket's engines. It describes work from decades ago that will continue to carry space exploration forward. The story told is not how one particular engine was built, but rather how ordinary people persisted and were driven to do extraordinary work.



S-IC stage installation into the Hot Fire Stand at MTF, now Stennis Space Center, in 1967.

On 23 April 1966, engineers tested a cluster of five J-2 engines that powered the second stage of the Saturn V Moon rocket. Remembered as one of the most remarkable achievements in the evolution of rocket propulsion, the first-of-their-kind rocket engines delivered Apollo 11 astronauts safely to the surface of the Moon and back to Earth. These engines helped assure three individuals, Neil Armstrong, Edwin "Buzz" Aldrin, and Michael Collins, a place in the history of humankind.

2010 NASA HISTORY PROGRAM REVIEW



The attendees visited the Cape Canaveral Air Force Station site and the Mercury-Redstone Rocket Facility.



The attendees visited the Apollo 1/Launch Complex 34 site.

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2010 NASA History Program Review (continued)



The attendees toured Kennedy Space Center and viewed the Shuttle tiles in the Orbiter Processing Facility.



The Space Shuttle Main Engine Processing Facility refurbishes the reusable engines.



The attendees toured Pad 39A before the Space Shuttle *Atlantis* launch.



Bob Arrighi won the 2010 Annual NASA History Award for his outstanding achievements in historic preservation.

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2010 NASA History Program Review (continued)



On 14 May 2010, Space Shuttle *Atlantis* launched on time for its final mission to the International Space Station.



2010 NASA History Program Review attendees stand together for a group picture: Mike Carrington, Nadine Andreassen, Christian Gelzer, Pete Merlin, Jennifer Ross-Nazzal, Gail Langevin, Elaine Liston, Erik Conway, Anne Power, Jane Odom, Glenn Bugos, Jonathan Wright, Alex MacDonald, Mike Wright, Sunny Tsiao, Kathleen Callister, Mike Crnkovic, Daphne Alford, Heidi Blough, Colin Fries, Steve Garber, Cindy Miller, Tracy McMahan, Michael Meltzer, Julie Cooper, Sandra Johnson, Roena Love, Steven Crofoot, Bob Arrighi, Rebecca Wright, Molly Porter, and Paul Candela.

RECENT PUBLICATIONS

NASA Publications Reprinted by Dover Publications

Lunar Impact: The NASA History of Project Ranger, by R. Cargill Hall, with a new foreword by Paul Dickson (Dover Publications, June 2010). This reprint makes available the complete history of Project Ranger, the first successful robotic lunar-exploration missions that led to the broadcast of close-up images of the Moon's surface on television. The book contains more than 100 photographs and illustrations. This book was originally published as NASA SP-4210 in 1977.

Commercially Published Works

Compiled by Chris Gamble

Almost Astronauts: 13 Women Who Dared to Dream, by Tanya Lee Stone, with a foreword by Margaret A. Weitekamp (Candlewick, February 2009). When America created NASA in 1958, there was an unspoken rule to become an astronaut: you had to be a man. This children's book tells the story of 13 women who had the right stuff. Even though the Mercury 13 women did not make it into space, they defied the prejudices of the time and blazed a trail for generations of women to follow. Weitekamp previously wrote *Right Stuff, Wrong Sex: America's First Women in Space Program* (Johns Hopkins University Press, 2006), an excellent scholarly account of this story.

Launch Magazine's History of Rockets & Model Rockets, by Mark Mayfield (Skyhorse Publishing, October 2009). Complete with explanations of the events and scientific developments that led to the proliferation of hobby rocketry, this book is a full-color pictorial history of aerospace endeavors around the world.

The Law and Policy of Air, Space and Outer Space, by Peter P. C. Haanappel (Kluwer Law International, 2nd edition, December 2009). This is a policy-oriented textbook on air and space law for students and practitioners. It covers the history and development of air and space law.

Space Exploration Research, edited by John H. Denis and Paul D. Aldridge (Nova Science Publishers, December 2009). This book examines a multitude of issues related to space exploration, including philosophy, biology, dark energy, space tourism, space station measurements, supernovae, and Saturn's rings.

Prepare for Launch: The Astronaut Training Process, by Erik Seedhouse (Springer-Praxis, January 2010). *Prepare for Launch* provides a unique insight into the astronaut application, selection, and training process. This book uniquely explores the preparation required to apply and train for the most challenging and demanding job in the world.

Small Satellite Missions for Earth Observation: New Developments and Trends, edited by Rainer Sandau, Hans-Peter Roeser, and Arnaldo Valenzuela (Springer, February 2010). This book is a compilation of contributions given at the 7th International Academy of Astronautics (IAA) Symposium on Small Satellites for Earth Observation, 4–8 May 2009, Berlin, Germany, that are representative of the new developments and trends in the area of small satellites for Earth observation reflecting the potentials of a diversity of missions and related technologies. They

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Recent Publications (continued)

may be based on national projects or international cooperation; single satellites or constellations; or pico-, nano-, micro-, or mini-satellites; or developed by companies, research institutions, or agencies.

Future U.S. Space Launch Capabilities, edited by Franz Lojdahl (Nova Science Publishers, January 2010). This book presents a wide spectrum of in-depth analyses detailing the U.S. space program, including alternatives to the Space Shuttle, space acquisition policies, government and private space launch vehicles, as well as satellites and the space stations.

Polar Oceans from Space, by Josefino Comiso (Springer, January 2010). *Polar Oceans from Space* presents a wealth of material providing a detailed history of the changing climate of the polar oceans as observed by satellite sensors in the last three decades. The main goal of the book is the presentation of results from studies of the time evolution of polar surfaces as observed by satellite sensors with about 150 satellite images of surface parameters. The study results reveal that, from month to month and from one year to another, Earth is changing.

Emerging Space Powers: The New Space Programs of Asia, the Middle East, and South America, by Brian Harvey, Henk H. F. Smid, and Theo Pirard (Springer-Praxis, March 2010). This book describes the origins, the developments, and the future of several emerging space powers, namely Japan, India, Iran, Brazil, Israel, North Korea, and South Korea.

Missions from JPL: Fifty Years of Amazing Flight Projects, by Robert Aster (CreateSpace, January 2010). This book covers every NASA mission flown by JPL during its first 50 years, including America's first satellite; rovers on Mars; spacecraft sent to intercept comets; and inside stories on more than 80 amazing projects.

For All Mankind: Recipients of the Congressional Space Medal of Honor, by Eric R. Caubarraux (CreateSpace, January 2010). *For All Mankind* profiles 28 astronauts who have received NASA's rarest and most coveted decoration.

Lunar Settlements, edited by Haym Benaroya (CRC Press, February 2010). Bringing together some of the most recognized and influential researchers and scientists in various space-related disciplines, *Lunar Settlements* addresses the many issues that surround the permanent human return to the Moon. Numerous international contributors offer their insights into how certain technological, physiological, and psychological challenges must be met to make permanent lunar settlements possible.

Huntsville Air and Space (Images of Aviation), by T. Gary Wicks (Arcadia Publishing, February 2010). Huntsville, Alabama, was at the epicenter of the greatest technological achievement of the 20th century as the Saturn V rocket propelled humankind to the Moon. Nowhere in the world is the century's rapid advance of air and space technology more apparent than in Huntsville. This unique evolution of flying machines and space vehicles unfolds in this pictorial documentary, including the dramatic growth of the research facilities and community infrastructure that produced these remarkable inventions.

American Astrophilately: The First 50 Years, by David S. Ball (A&A Publishers, LLC, February 2010). In 70 years, the United States traveled from Kitty Hawk, North Carolina, to the Moon. This uniquely American story of the conquest of space is traced by stamp collectors who enjoy aerospace history. By exhibiting envelopes

that are postmarked near launchpads, near mission control centers, and on recovery ships, astrophilatelists tell an amazing tale of new sailing ships on a vast new ocean.

My Dream of Stars: From Daughter of Iran to Space Pioneer, by Anousheh Ansari and Homer Hickam (Palgrave Macmillan, March 2010). This book is the memoir of space pioneer Anousheh Ansari, the first-ever female commercial spaceflight participant.

The Red Rockets' Glare: Spaceflight and the Soviet Imagination, 1857–1957, by Asif A. Siddiqi (Cambridge University Press, February 2010). *The Red Rockets' Glare* is the first academic study on the birth of the Soviet space program and one of the first social histories of Soviet science. Based on many years of archival research, the book situates the birth of cosmic enthusiasm within the social and cultural upheavals of Russian and Soviet history.

Mars: Prospective Energy and Material Resources, edited by Viorel Badescu (Springer, February 2010). The location and use of Mars's natural resources is vital to enabling cost-effective, long-duration human exploration and exploitation missions as well as subsequent human colonization. This book investigates the possibilities and limitations of various systems supplying human bases on Mars with energy and other vital resources. The book collects together recent proposals and innovative options and solutions.

Revitalizing NASA's Suborbital Program: Advancing Science, Driving Innovation, and Developing a Workforce, by the Committee on NASA's Suborbital Research Capabilities, Space Studies Board, National Research Council (National Academies Press, March 2010). *Revitalizing NASA's Suborbital Program* is an assessment of the current state and potential of NASA's suborbital research programs and a review of NASA's capabilities in this area. The findings illustrate that suborbital program elements—airborne, balloon, and sounding rockets—play vital and necessary strategic roles in NASA's research, innovation, education, employee development, and spaceflight mission success, thus providing the foundation for the achievement of Agency goals.

The History of Finnish Space Activities, by Ilkka Tapio Seppinen and Risto Pellinen (Beauchesne Editeur, 2010). Finland started its first space-related hardware program in 1985. Ten years later, Finland was ready to join the European Space Agency. However, space-related, ground-based activities had been going on in Finland for nearly 160 years before it became an active member of the club of spacefaring nations. This book gives some background perspectives on this development and describes the first steps taken in Finland immediately after the launch of Sputnik I in 1957.

Hubble: A Journey Through Space and Time, by Edward Weiler (Abrams, April 2010). Marking the 20th anniversary of NASA's Hubble Space Telescope, this book contains more than 100 images, the most significant ones annotated by scientists. Space Shuttle astronauts who have performed maintenance on the telescope also contributed to this book.

The Dream Machine: The Untold History of the Notorious V-22 Osprey, by Richard Whittle (Simon & Schuster, April 2010). The Marines' V-22 Osprey "tiltrotor" is a hybrid aircraft able to take off, land, and hover with the agility of a helicopter yet fly as fast and as far as an airplane. Based on in-depth research and hundreds of

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Recent Publications (continued)

interviews, *The Dream Machine* is this airplane's story: from early financial, technological, and political development troubles to fielding the aircraft into combat. The book is not only a chronicle of an extraordinary chapter in U.S. Marine Corps history, but it also provides a fascinating look at a machine that could still revolutionize air travel.

The Cambridge Dictionary of Space Technology, by Mark Williamson (Cambridge University Press, April 2010). While the emphasis is on defining the meaning of a word or phrase, *The Cambridge Dictionary of Space Technology's* 2,300 entries have been written with the intention of enhancing the understanding of the subject, both for the practicing specialist and the interested layperson.

American X & Y Planes, Volume 1: Experimental Aircraft to 1945, by Kev Darling (Crowood Press, April 2010). The world of experimental and prototype aircraft gives birth to many interesting and unusual machines. This book, the first of a two-volume history of U.S. "X" and "Y" experimental planes from the earliest years of aviation to the present day, covers the period from the Wright brothers to the end of World War II, covering famous names to long-forgotten manufacturers.

The Economic Geography of Air Transportation: Space, Time, and the Freedom of the Sky, by John T. Bowen (Routledge, March 2010). This book answers three questions with examples drawn from throughout the world: how did air transportation develop in the century after the Wright brothers, what does it mean to live in an airborne world, and what is the future of aviation in this century?

Turning Dust to Gold: Building a Future on the Moon and Mars, by Haym Benaroya (Springer-Praxis, April 2010). This book is a journey into our potential future, as several nations today begin seriously to plan and build up their capabilities for piloted spaceflight and settlement on the Moon and Mars.

The Spaceflight Vault: A History of NASA's Manned Missions, by Mark Mayfield (Whitman Publishing, April 2010). *The Spaceflight Vault* traces the extraordinary journey from the early rocketry pioneers to the astronauts of today. Filled with hundreds of photos from the archives at Johnson Space Center, Clark University, and private collections, *The Spaceflight Vault* also contains replicas of historic memorabilia.

The Eerie Silence: Renewing Our Search for Alien Intelligence, by Paul Davies (Houghton Mifflin Harcourt, April 2010). After a half century of scanning the skies, the Search for Extraterrestrial Intelligence (SETI) has not provided any answer regarding intelligent life beyond Earth. Physicist and astrobiologist Paul Davies argues that the search should be expanded because we may well be looking in the wrong place, at the wrong time, and in the wrong way.

Another Science Fiction: Advertising the Space Race 1957–1962, by Megan Prelinger (Blast Books, April 2010). While science fiction writers expressed the dreams and nightmares of the era in pulp print, the aerospace industry itself often promoted its future capabilities with fantastical, colorful visions depicted in its advertisements aimed at luring young engineers into its booming workforce. Aerospace industry ads pitched the idea that we lived in a time when anything was possible. With nearly 200 entertaining, intriguing, inspiring, and sometimes mind-boggling visions of our new Space Age in the atomic era, *Another Science Fiction* presents a fresh, smart, and focused look at the moment when American aerospace development and world

politics led to Kennedy's 1961 directive to achieve the goal of "landing a man on the Moon and returning him safely to the Earth."

The Legacy of Flight: Images from the Archives of the Smithsonian National Air and Space Museum, by David Romanowski and Melissa Keiser (Bunker Hill Publishing, April 2010). This book is a stunning documentary history of aviation and spaceflight in the last 100 years that highlights the achievements of both the famous and the everyday people involved in the endeavor as well as every major type of aircraft (military, civilian, commercial, and civil), and all the professions that make it work: pilot, mechanic, designer, builder, ground and air crew, astronaut and cosmonaut, controller, and scientist. Every image tells a story and is accompanied by short, delightful essays.

Apollo 13: NASA Mission Reports, edited by Robert Godwin (Collector's Guide Publishing, Inc./Apogee Books, 40th anniversary edition, May 2010). After an explosion in the Service Module crippled the spacecraft while it was still outward bound, the crew would spend several harrowing days in near-frigid temperatures while the technicians at home worked around the clock to devise new and ingenious ways to keep them alive and bring them home safely. In this book, some of the rare official documentation of the voyage of Apollo 13 is collected and made commercially available for the first time.

The Unbroken Chain, by Guenter Wendt (Collector's Guide Publishing, Inc./Apogee Books, May 2009). This is the autobiography of Guenter Wendt, the one man who worked side by side with every astronaut who left the Cape bound for space. Because of his unique perspective from the launchpad, his story is filled with important accounts and anecdotes, many of which have never been published until now.

Footprints in the Dust: The Epic Voyages of Apollo, 1969–1975, edited by Colin Burgess (University of Nebraska Press, June 2010). This book covers the flights of the Apollo program from Apollo 11 through the Apollo-Soyuz mission in 1975. The authors convey the human drama and chart the technological marvels that went into those missions. They also put the accomplishments of American spaceflight into historical context, examining the competitive space race with the Soviet Union; the roles of politics and personality in launching the mission; and the consequences, practical and profound, of this giant leap for humankind.

MoonFire: The Epic Journey of Apollo 11, by Norman Mailer (Taschen, June 2010). One of the greatest writers of the 20th century, Norman Mailer was hired by *LIFE* in 1969 to cover the Apollo 11 Moon mission. He enhanced his reportage in the brilliantly crafted book *Of a Fire on the Moon*, which is excerpted in this edition. Mailer provides provocative and trenchant insights into this epoch-making event. Illustrating this volume are hundreds of photographs and maps from the NASA vaults, magazine archives, and private collections. These images document the development of the Agency and its mission, life inside the Command Module and on the Moon's surface, and the world's jubilant reaction to the landing.

Airplane Racing: A History, 1909–2008, by Don Berliner (McFarland, May 2010). The history of air racing is very much the history of aviation: with glamorous pilots, some of military fame (e.g., Jimmy Doolittle); builders (e.g., Glenn Curtiss); machines that captivated the national imagination; and many relatively unknown tinkerers and designers.

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Recent Publications (continued)

Transatlantic Airships: An Illustrated History, by John Christopher (Crowood Press, April 2010). This book tells the story of transatlantic airships from the earliest flights to postwar proposals for colossal atomic-powered leviathans. It is a story of fantastic visionaries, incredible flying machines, great moments of triumph, and, ultimately, spectacular disaster.

Space Tourism Issues, edited by Elias Wikborg (Nova Science Publishers, May 2010). This book evaluates the Federal Aviation Administration's (FAA) safety oversight of commercial space launches, responses to emerging issues, and challenges in regulating and promoting space tourism and responding to competitive issues affecting the industry. The federal role in commercial space launches and the government's response to emerging industry trends, both domestically and internationally, are also dealt with.

ICAO: A History of the International Civil Aviation Organization, by David Mackenzie (University of Toronto Press, May 2010). The International Civil Aviation Organization (ICAO), a United Nations agency, oversees and encourages the development of international civil aviation. ICAO is involved with aviation safety, technical standards, legal regulations, and operating procedures. This book covers a broad political-diplomatic history of the organization and the role that it played in the evolution of international civil aviation.

The Making of History's Greatest Star Map, by Michael Perryman (Springer, May 2010). How far away stars are is a question that has confounded scientists for centuries. In the last two decades of the 20th century, the European Space Agency developed and launched the Hipparcos satellite, around which this account revolves, to carry out these exacting measurements from space. This book traces the subject's history, explains why such enormous efforts are considered worthwhile, and mixes these with a firsthand insight into the Hipparcos project and how big science is conducted at an international level.

ONLINE RESOURCES

NASA History

<http://history.nasa.gov/astp>

In anticipation of the 35th anniversary of the Apollo-Soyuz Test Project, this Web site features a number of new historical documents and videos. Special thanks to Liz Suckow and Colin Fries for assembling and posting them.

http://history.msfc.nasa.gov/50th_anniversary/timeline.pdf

Text, photos, and videos about the history of Marshall Space Flight Center are featured in a new online interactive timeline on the Center's 50th anniversary Web site.

NASA'S NATIONAL HISTORIC LANDMARKS

The National Park Service manages the National Register of Historic Places (NRHP). The NRHP contains approximately 2,900 National Historic Landmarks (NHLs): the buildings, districts, structures, and objects that are significant to America's history nationally. While NASA's historic accomplishments in aeronautical research, science, and space exploration are well documented, less is known about the buildings and structures that supported and enabled these accomplishments. This series provides an overview of NASA's 20 NHLs. This issue features NASA's 25-Foot Space Simulator located at the Jet Propulsion Laboratory, Pasadena, California.

From Mariner to the Rovers: The 25-Foot Space Simulator

Jet Propulsion Laboratory, Pasadena, California

By Christian Benitez and Paul Van Velzer

Success can be measured by its failures. Before the success of the first planetary flyby or the success of the first rover on Mars, the failures of the spacecraft were first identified. It is a routine process at the Jet Propulsion Laboratory (JPL) 25-Foot Space Simulator to recognize how things should *not* be done before developing the successful design for how things *should* be done.

The 25-Foot Space Simulator (hereinafter referred to as the "Simulator") was built in 1961 and is the only NASA facility capable of producing high-quality space simulation for testing spacecraft under conditions of extreme cold; high vacuum; and intense, highly uniform, collimated solar radiation. Since its construction, the Simulator has been extensively used for research, development, and qualification testing of space-related test articles. The Simulator enables JPL to test its spacecraft in a true space environment and to locate and eliminate problems before launch.

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NASA's National Historic Landmarks (continued)

This ability to create a true space environment has led engineers and scientists from Europe and Japan to study its construction in an attempt to build similar facilities.

In 1989, the Simulator was designated an NHL by the National Park Service as part of the NASA Man-in-Space theme study. Although the study focused on *human* spaceflight, the study acknowledged the Simulator's technological capabilities in simulating the environment of space and recognized its strong associations with the *robotic* space exploration program of the United States.

The Simulator was considerably utilized in the testing of some of the earliest U.S. planetary and lunar missions, including the Mariner and Ranger programs of the 1960s and 1970s. The Mariner series of spacecraft were designed to investigate Mars, Venus, and Mercury; they marked a number of firsts, including the first planetary flyby, the first planetary orbiter, and the first gravity-assist. The Ranger spacecraft relayed the most detailed pictures and data of the Moon as they approached the lunar surface. Prior to their respective launches, each of these actual spacecraft was placed in its entirety within the Simulator for testing.

The Simulator is a stainless-steel cylindrical vessel 27 feet in diameter and 85 feet high. For solar simulation, the test volume is 20 feet in diameter and 25 feet high. For nonsolar testing, the test volume is approximately 70 feet high. The walls and floor of the Simulator are lined with thermally opaque aluminum cryogenic shrouds. The shrouds are louvered aluminum panels that are painted black on all surfaces that face the test volume. In order to simulate extreme cold conditions, the temperature of the shrouds can be maintained at -185°C by cooling with liquid nitrogen. Intermediate temperatures between -125°C to $+100^{\circ}\text{C}$ can be obtained by either cooling or heating gaseous nitrogen, which is pumped through the shrouds.

The solar simulation capabilities are performed through the use of an array of 37 xenon gas-filled arc lamps (20 to 30 kilowatts each) that are capable of solar eclipses and radiation levels below and above 1 solar constant (1 solar constant = 126 W/ft^2). In addition to the arc lamps, the solar simulation utilizes an integrating lens unit (mixes the light from the lamps to form a uniform beam), a penetration window, and a single-piece 23-foot mounted collimating mirror located at the top of the chamber. The maximum beam diameter is 19.5 feet, which can provide intensities up to 2.7 solar constants. With a smaller collimating mirror and different integrating lens units, a 9-foot-diameter beam with intensities up to 12 solar constants can be provided. The Simulator's use of a collimating mirror to produce the intense solar radiation of space was the first system of its type when installed in 1966.

Additional modifications have transpired at the Simulator in order to satisfy expanding space simulation and cleanliness requirements. A class 10,000 clean-room facility (35 feet long by 30 feet wide by 32 feet high) was constructed for test-article assembly and system checkout prior to environmental testing. An airlock separates the clean room from the Simulator. Test items are moved from the clean room into the Simulator via overhead monorail cranes. The test item is either hard-mounted to stanchions that protrude from the floor or is suspended by cables attached to hard points that are mounted at various levels around the chamber. Video capture of the test item within the Simulator is available using the Satellite Test Assist Robot (STAR) system. STAR consists of two video cameras and an infrared camera. The infrared camera can be used to monitor temperature gradients over the visible surfaces of the test item. The cameras are attached to a pan and tilt unit, which is

mounted on a beam that can be raised to an elevation of approximately 30 feet. This allows for the viewing of the backside, top, and bottom of the test item. The video captured from the cameras is recorded to VCR tape.

The simulated space environment (cold or solar) can be established in about 90 minutes. Test conditions can be terminated and access provided to the tested items in about 2½ hours. The Simulator is capable of supporting 24-hour operations, including past test durations that have exceeded 1 month.

Despite the various modifications to the Simulator, the Simulator maintains a historic appearance from its early construction. In addition to the Simulator itself, the Simulator control room has also required modifications. Ingenuity by the Simulator Operations team has allowed the control room to maintain its 1961 appearance but operate with the most current and effective technology. The control panels, which contain process-flow diagrams and digital data displays, are vintage 1961. The switches and dials on the control panel have functioned in the same manner since its original construction. However, behind the displays is an intricate design of computers and wiring that appropriately performs all commands initiated from the control room. Although the vintage paneling preserves the historic appearance of the Simulator, the decision to keep the original paneling was not only for historic integrity, but also equally for the purpose of continuity in the operation of the Simulator. The Simulator Operations team understood that upgrades to technology would allow the Simulator to perform more efficiently. However, the team also believed that the operating procedures should stay the same regardless of the technology. Therefore, rather than training technicians to learn new technology, the new technology was designed to function with the vintage panels. As a result, any technician from any time period would require minimal training to operate the Simulator.

From the early 1960s through the late 1980s, the Simulator was consistently utilized. In addition to NASA programs, the Simulator has been made available, with NASA approval, to any government agency and, under certain conditions, to private industry. Following the Mariner and Ranger programs, the Simulator performed testing of NASA spacecraft from the Surveyor, Viking, Voyager, and Galileo programs. Non-NASA testing has been performed on the European Space Agency's Olympus program and various satellites from Intelsat, Ltd.

Although the Simulator was responsible for the testing of the Mars rover programs (Pathfinder in 1996 and Mars Exploration Rovers [MERs] Spirit and Opportunity in 2002), testing opportunities at the Simulator have become scarce. Private aerospace companies have worked and continue to work with NASA in the development and construction of NASA spacecraft. As such, these aerospace companies have assembled infrastructure at their own facilities that perform testing comparable to that of the Simulator. Technology used at the Simulator, such as the use of nitrogen for cold simulation, is a common practice that can be used at other facilities. Although the Simulator has "one of a kind" solar simulation capabilities, spacecraft destined for the near-Sun interior planets (Mercury and Venus) and/or designed for exposure to extreme solar radiation have been limited. According to Paul Van Velzer of the Simulator Operations team, the Simulator has the capability of testing three spacecraft annually. However, the annual operating budget for the Simulator can be satisfied with the testing of only one spacecraft a year for a period of 10 days. When the Simulator is not performing actual testing, the Simulator requires frequent

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NASA's National Historic Landmarks (continued)

maintenance and upkeep in order to be ready for immediate testing. Although the testing of spacecraft is not as frequent as it once was, NASA programs and non-NASA partnerships have provided enough opportunities for testing to keep the Simulator utilized.

Welcome to Kathleen Callister, the new Agency Historic Preservation Officer. Many thanks and best wishes to Tina Norwood, who has moved on to another environmental program!

OTHER AEROSPACE HISTORY NEWS

National Air and Space Museum (NASM)

Compiled by Michael Neufeld

Roger Launius, Division of Space History, has published “Federal History and National Identity: Reflections from the Trenches,” *Federal History*, issue 2, January 2010, pp. 74–80, based on his Roger Trask Award presentation at the 2009 Society for History in the Federal Government annual meeting. He also published an op-ed with G. Michael Green, entitled “New Vision for NASA,” *Florida Today*, 14 February 2010. Additionally, he organized and chaired the session “Spaceflight and the Environment: At the Conjunction of History and Policy” at the National Council on Public History/American Society for Environmental History annual meeting, Portland, Oregon, 11 March 2010, and organized and commented on the papers presented at the session “Visualizing Space Exploration: Images and Symbols from the Space Age” at the Organization of American Historians Annual Meeting, Washington, DC, 7 April 2010. He also moderated the Apollo 13 Crew and Mission Control Discussion sponsored by the Adler Planetarium in Chicago, Illinois, 11 April 2010.

Michael Neufeld and Alex Spencer, Aeronautics Division, have been editing a new, richly illustrated book, *Smithsonian National Air and Space Museum: An Autobiography*, to be published by *National Geographic* in October 2010. Melissa Keiser of the Archives Division has led the extensive in-house photo research and selection effort, assisted by Marilyn Graskowiak, Chair of the Archives Division. Major chapters and sections have been written by Tom Crouch, Bob van der Linden, Dominick Pisano, and Dik Daso of Aeronautics; Ted Maxwell of the Center for Earth and Planetary Studies; and Michael Neufeld. Senator John Glenn has provided the foreword, and General John R. Dailey, NASM Director, has provided the afterword. The book covers the history of the Smithsonian Institution’s involvement in flight technology, from Civil War ballooning through the building of the Mall Museum to the completion of the Udvar-Hazy Center’s Phase 2 in 2010.

Von Hardesty, Aeronautics, has been invited by the Department of State to participate in their U.S. Speaker/Specialist Program for the Russian Federation. The program, scheduled for May 2010, will consist of lectures and special seminars dealing with the theme of “Lend Lease Aviation to the Soviet Union in World War II.” The

invitation was arranged through the Bureau of International Information Programs in coordination with the U.S. consulate in Yekaterinburg, Russia.

American Astronautical Society (AAS) History Committee

By Michael Ciancone

Newsletter and Distribution List

Explorer, the periodic newsletter of the AAS History Committee, is available on the AAS Web site at <http://astronautical.org/committees/history/>. Issue 10 was published in March 2010.

If you would like to electronically receive each issue, as well as an occasional bit of information related to spaceflight history, send an e-mail with your request to the Chair of the History Committee, Michael Ciancone, at michael.l.ciancone@nasa.gov.

Emme Award for Astronautical Literature

The AAS is pleased to announce the establishment of a new book award for books, the Emme Award for Astronautical Literature (Youth), or Emme Junior, as it has affectionately been dubbed. As you may know, the Emme Award, first presented in 1982, is annually presented by the AAS to the author of the book that best serves public understanding about the impact of astronautics on society and its potential for the future. The Emme Junior will continue that tradition by recognizing efforts to inspire and educate K–12 students through books that effectively communicate the concept and possibilities of astronautics. Entries will be judged on the basis of originality (format, style, and subject), ability to inspire, educational content, accuracy of material, and effectiveness in reaching intended audience. The recipient of the first Emme Junior will be announced along with the Emme Award during the awards ceremony at the AAS National Meeting in fall 2010.

The 2009 Emme Award process has begun. The publishers of titles identified for consideration have been contacted for review copies if they wish to have their title considered further. The members of the review panel will meet and discuss during the next several months to select a recipient, as well as a short-list of finalists. The recipient of the award will be officially announced during the awards ceremony at the AAS National Meeting in fall 2010.

ABC-CLIO Space History Encyclopedia

The long-awaited *Space Exploration and Humanity—A Historical Encyclopedia* is slated to be released in August 2010. The AAS History Committee has provided sustained editorial support for the effort under the patient guidance of general editor Stephen Johnson. Our hope is that you will find that the wait has been worth it.

Anthology of American Writings About Flight

Joe Corn, Senior Lecturer Emeritus in the Department of History at Stanford University, is compiling and editing an anthology of American writings about flight for the Library of America (a nonprofit publisher).

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Other Aerospace History News (continued)

This collection will include many short (about 25 pages, maximum) selections written by Americans about flight, covering all eras and vantage points from ballooning to spaceflight. There will be selections by pilots, astronauts, engineers, inventors, passengers, and journalists.

Please send any citations for writings based on personal, first-hand experiences of flight that seem particularly memorable, moving, or unusual to joe.corn@stanford.edu.

NASA's International Space Station Program Wins Collier Trophy

NASA's International Space Station Program won the 2009 Collier Trophy, which recognizes the greatest achievement in aeronautics or astronautics in America.

The National Aeronautic Association in Washington, DC, selected the Station "for the design, development, and assembly of the of the world's largest spacecraft, an orbiting laboratory that promises new discoveries for mankind and sets new standards for international cooperation in space."

The Station is a joint project of NASA, the Canadian Space Agency, the European Space Agency, the Japan Aerospace Exploration Agency, and the Russian Federal Space Agency. The orbiting laboratory nears completion, and it will mark the 10th anniversary of a continuous human presence in orbit later this year.

UPCOMING MEETINGS

The annual meeting for the Society of American Archivists will be held **10–15 August 2010** in Washington, DC. Please see <http://www2.archivists.org/conference/2010/washington> for more details.

The SETI Institute will host SETICon **13–15 August 2010** in Santa Clara, California. Please see <http://www.seticon.com/> for more details.

The annual meeting for the Society for the History of Technology will be held **29 September–3 October 2010** in Tacoma, Washington. Please see http://www.historyoftechnology.org/annual_meeting.html#future_mtgs for more details.

The annual meeting for the History of Science Society will be held **4–7 November 2010** in Montreal, Quebec. Please see <http://www.hssonline.org/Meeting/2010HSSMeeting/index.html> for more details.

The annual meeting for the American Historical Association will be held **6–9 January 2011** in Boston, Massachusetts. Please see <http://www.historians.org/annual/2011/index.cfm> for more details.

The annual meeting for the American Library Association (midwinter meeting) will be held **7–12 January 2011** in San Diego, California. Please see <http://www.ala.org/ala/conferencesevents/upcoming/midwinter/index.cfm> for more details.

The 217th meeting for the American Astronomical Society will be held **9–13 January 2011** in Seattle, Washington. Please see <http://aas.org/meetings/aas217> for more details.

OBITUARIES

Major General Robert White

Major General Robert White, the test pilot and space pioneer who set major milestones in the history of flight, died 17 March 2010. Major General White completed 16 flights in the X-15 rocket-powered aircraft, becoming the first pilot to fly at Mach numbers 4, 5, and 6. On 17 July 1962, he also set a world altitude record flying to 314,750 feet (or 59.6 miles), which qualified him for Air Force astronaut wings.

Major General White entered the military as an aviation cadet in 1942 and received his commission as a pilot in 1944 during World War II. After the war, he earned a degree in electrical engineering at New York University and got called back into service for combat missions during the Korean and Vietnam wars. Major General White also commanded the Air Force Flight Test Center at Edwards Air Force Base in the early 1970s and retired from the Air Force in 1981.

Guenter Wendt

Guenter Wendt, the man known as the original pad leader, died on 3 May 2010. He was born in Germany and immigrated to the United States in 1949. Mr. Wendt worked as a mechanical engineer for McDonnell Aircraft Corporation and became responsible for the spacecraft on the launchpads to ensure everyone's safety during the Mercury and Gemini flights. He would be the last man that outgoing crews would see and talk to before the spacecraft hatch closed. After the Apollo 1 fire, North American Rockwell hired Mr. Wendt to oversee the spacecraft launch preparations for Apollo, Skylab, and the Apollo-Soyuz Test Project, as well as the beginning flights for the Space Shuttle. He retired in 1989 and wrote his memoirs, *The Unbroken Chain*. Mr. Wendt received numerous awards including NASA's Letter of Appreciation, several Group Achievement Awards, and the "Silver Snoopy."

M. J. Raffensperger

Born 28 October 1922, M. J. "Maurey" Raffensperger died on 19 May 2010. He served in the Fourth Infantry Division during World War II, earning the Bronze Star, the Combat Infantryman Badge, and a Presidential Unit Citation.

After the war, Mr. Raffensperger earned both a B.S. and an M.S. in electrical engineering at Stanford University and an MBA from the George Washington University.

While he was working as the Director of Engineering at Nortronics/Northrop, NASA recruited him to become the Director of Manned Earth Orbital Studies. Mr. Raffensperger also worked for the Defense Communications Agency and the Voice of America before his retirement in 1984.

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Obituaries (continued)

During his long career in both private industry and federal government, Mr. Raffensperger obtained six patents. He also received the Exceptional Civilian Service Award for his work from the Department of Defense and the Distinguished Honor Award from the Department of State.

Rex Hall

British space historian Rex Hall passed away on 31 May 2010. He was a well-known and respected researcher of the Soviet/Russian space program and cosmonaut teams. Mr. Hall coauthored several books, including *The Rocket Men: Vostok & Voskhod*, *The First Soviet Manned Spaceflights*; *Soyuz: A Universal Spacecraft*; and *Russia's Cosmonauts: Inside The Yuri Gagarin Training Center*. He also served as a council member and past president of the British Interplanetary Society.

The NASA History Division, under the Office of Communications, NASA Headquarters, Washington, DC 20546, publishes *News and Notes* quarterly.

To receive *News and Notes* via e-mail, send a message to history-request@hq.nasa.gov. In the text portion, simply type “subscribe” without the quotation marks. You will receive confirmation that your account has been added to the list for the newsletter and for receiving other announcements. For more information about our listserv, please see <http://history.nasa.gov/listserv.html> on the Web. We also post the latest issue of this newsletter at <http://history.nasa.gov/nltrc.html> on the Web.

Do you have more questions about NASA history in general? Please check out our NASA History Division Home Page at <http://history.nasa.gov> on the Web. For information about doing research in the NASA History Division, please e-mail us at histinfo@hq.nasa.gov or call 202-358-0384.

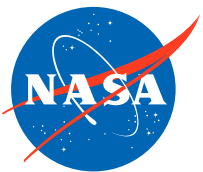
We also welcome comments about the content and format of this newsletter. Please send comments to Giny Cheong, newsletter editor, at giny.cheong@nasa.gov.

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