News & Notes

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From the Chief Historian

At least once each quarter, I get to tear myself away from the seemingly endless round of meetings and the daily tidal wave of e-mail to write up my contributions to this newsletter. For me, it is like downing a giant iced coffee on a steamy July here in Washington—bracing, refreshing, and energizing. Not only does it force me to step back and see things outside my office from a wider perspective, but it also gives me a chance to learn about new things: NASA history and the great family of folks who share a passion for it.

I think you'll really enjoy the variety in this issue; yet what struck me the most in reviewing the content is the cumulative effect of the daily efforts of so many of the people working in this field. At times, these efforts earn some well-deserved recognition. For example, our colleague Bob Arrighi was recently awarded NASA's Exceptional Public Service Medal for his prolific work at Glenn Research Center. Well done, Bob! Also, our esteemed colleague (and my predecessor as Chief Historian) Roger Launius was promoted this summer to Associate Director for Collections and Curatorial Affairs at the National Air and Space Museum. Congratulations, Roger!

Other efforts may be less noted but are no less important. I think, for example, of Jet Propulsion Laboratory historian Erik Conway's election to the History of Science Society Council or Pete Merlin's incredible productivity in the NASA Aeronautics Book Series. Another largely thankless job

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The NASA Seal and Insignia, Part 2

By Joseph R. Chambers, NASA Langley Research Center (Retired)

"The NASA Seal and Insignia, Part 1" is available online in our last News & Notes *(Vol. 30-2) at* http://history.nasa.gov/nltr30-2.pdf.

Because the formal NASA seal could be used only for official applications, Dr. T. Keith Glennan asked James Modarelli to also design a simplified insignia for informal uses by the new agency. The applications of the insignia would include items such as lapel pins and signs on buildings and facilities. Modarelli worked on the insignia design task while completing the seal design. He chose the main elements of the seal for the simplified insignia: the circle, representing the planets; the stars, representing space; the supersonic arrow wing, representing aeronautics; and an orbiting spacecraft. He then added the letters: N-A-S-A.[1]

In April 1959, NASA formally notified the Heraldic Branch of the Army Office of the Quartermaster General (now the Army Institute of Heraldry) that it would use the insignia design created by Modarelli and that NASA would not require its services for this undertaking.

1. "This Is NASA Insignia," *Orbit* (31 July 1959): 1. The *Orbit* was an in-house newsletter at Lewis Research Center.

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In This Issue:

From the Chief Historian (continued)

was turning the papers from our 2011 history symposium into a coherent and thought-provoking book. Let me rectify that thankless part right here and now with a big thank-you to Mike Neufeld for shepherding *Spacefarers: Images of Astronauts and Cosmonauts in the Heroic Age of Spaceflight* to such a successful completion. He and the team at Smithsonian Institution Scholarly Press have not only produced a beautiful book but have gotten it into print in record time. (You've set the bar pretty high with this one, Mike.)

Throughout this issue, you'll see similar reports from the NASA Centers, the Smithsonian Institution, Purdue University, professional societies, and others who are doing outstanding work in preserving the stuff of aerospace history, stimulating the study of this subject, and communicating the wonder of it all to others. If this issue of the newsletter doesn't make you pause in wonder at it all, then maybe you need one of those iced coffees to go along with it.

Drink it in, and Godspeed,

William P. Barry
Chief Historian

The NASA Seal and Insignia, Part 2 (continued)

Glennan formally announced the new NASA insignia in the NASA Management Manual on 15 July 1959. Specifications and orders for insignia lapel pins, decals, and stationery were completed during the fall of 1959. In November 1959, James Modarelli transferred to NASA Headquarters, where he held the position of Director of Exhibits for NASA until he returned to Lewis Research Center in 1961.[2]

Known for its first 16 years as the insignia, Modarelli's creation would be replaced in 1975.

The NASA Logotype

2. "Modarelli Transfers to Headquarters," *Orbit* (20 November 1959): 1.

The NASA insignia served the Agency well for 16 years, becoming a graphic centerpiece during the excitement of the Apollo years. However, in 1975, it was decided that the insignia should take on a more contemporary appearance. Modarelli's original insignia was dubbed "the meatball" in 1975 by the head of technical publications at NASA Headquarters, to differentiate it from the new logo called the NASA logotype. As part of the Federal Graphics Improvement Program of the National Endowment for the Arts, NASA replaced the meatball with a stripped-down, modernist interpretation where even the cross strokes of the *A*'s were removed. The logotype was designed by a New York firm specializing in corporate identity.

In addition to providing a more contemporary look, the logotype was in part justified by difficulties encountered with colors during the printing process for the meatball before the age of high-quality digital printers. In addition, recognition of the elements was difficult for some viewing conditions.

Acceptance of the new logotype insignia was not universal within the Agency. In particular, longtime employees were dismayed by the replacement of their beloved meatball with the new insignia, which they called "the worm" in a derogatory sense.

Rebirth of the Meatball

Interestingly, during the Agency-wide adoption of the logotype, most NASA Centers retained the meatball markings on their aircraft hangars. When new NASA Administrator Daniel Goldin made his first tour of the Langley Research Center in 1992, he asked Center Director Paul Holloway what he could do to improve morale at the NASA Centers. Holloway pointed to the meatball insignia that had been retained on the hangar and said, "Restore the meatball."

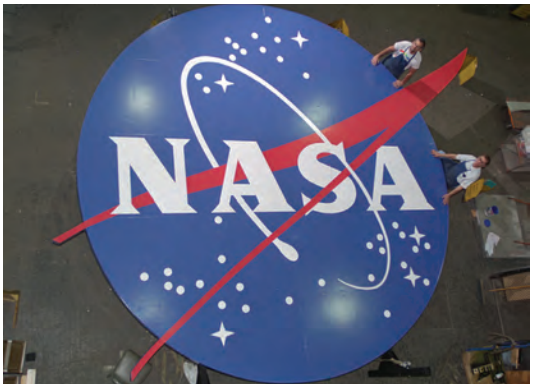
In May 1992, Goldin brought back the meatball to "instill new enthusiasm and pride across the [A]gency" by invoking the symbol of the glory days and the enthusiastic culture that existed during NASA's highly successful crewed space programs of the 1960s and 1970s.[3]

Mr. and Mrs. James Modarelli receive a special award from NASA Administrator Daniel Goldin in 1992. The award citation stated, "To the creator of NASA's original 'meatball' insignia. In honor of your lasting contributions to the proud spirit of the National Aeronautics and Space Administration[,] October 21, 1992." (NASA Glenn 1992_09961)

3. Hilary Greenbaum, "Who Made Those NASA Logos?" *New York Times* (31 October 2012), available online at *http://6thfloor.blogs.nytimes.com/2011/08/03/who-made-those-nasa-logos/* (accessed 20 February 2013).

The Designer Passes

James Modarelli left Lewis and served as Exhibits Chief at NASA Headquarters for two years (1959–1961), then returned to Lewis, where he served as Chief of the Technical Publications Division and retired in 1979 as Chief of the Management Services Division after a 30-year career. He had, of course, been very disappointed when his meatball design had been replaced by the worm.[4]



Workers at NASA Lewis Research Center apply finishing touches to a new 20-foot-diameter meatball insignia for the Lewis aircraft hangar in 1997. (NASA Lewis C-1997-4062)

Eighteen years after Modarelli's retirement, on 1 October 1997, NASA Lewis Research Center replaced its weather-worn, 35-year-old meatball insignia on the Lewis hangar with a new, 20-foot-diameter version. Following a rededication ceremony, the Lewis employees were invited to sign their names on the back of the insignia before it was placed on the hangar. The honor of being the first to sign was, of course, given to Jim Modarelli.[5]

James J. Modarelli died on 27 September 2002, but his meatball concept and artistic skills live on to instill the pride, dedication, and accomplishments of his Agency.

News from Headquarters and the Centers

NASA Headquarters

History Program Office

By Bill Barry

As many of you may have heard, Alan Ladwig, the Public Outreach Division Director in the NASA Headquarters Office of Communications, retired at the end of May. Not only is Alan a great supporter of the NASA History Program, but he was also our boss. When the Public Outreach Division was created in 2010, the History Division moved from the (then) Office of External Relations to the Public Outreach Division in the newly renamed Office of Communications (formerly the Office of Public Affairs, or Code P). Steve Garber had been the acting Chief Historian for quite a while at

4. "Designer Reflects on Creation of NASA 'Meatball'," *Lewis News* (3 July 1992): 1. The *Lewis News* was an in-house newsletter.
5. "Employees Rededicate Famous NASA Symbol," *Lewis News* (November 1997): 1.

that point, so Alan acted as quickly as he could to fill that vacancy. I'm eternally grateful for his confidence in selecting me that summer to serve as the sixth Chief Historian. Alan was a great guy to work for; he was there when you needed his support but happy to let us run the History Program Office without intrusive oversight. We'll miss him. With the departure of Alan, and other recent changes, Associate Administrator for Communications David Weaver (Alan's former boss) is considering some reorganization of the office. Although we don't know exactly how this change will work out, I am confident that the History Program Office will be left intact within whatever structure emerges. From a customer perspective, I expect that the internal bureaucratic change will have little noticeable effect.

The other big news for the History Program Office is that the Headquarters building renovation will have a significant impact on us. A couple of years ago, we had to move some offices in the building (from the fifth floor to the second) to make way for the renovation, but this fall we are getting a double whammy. As the renovation reaches the concourse level (what everyone else would call a basement), our Historical Reference Collection (HRC) will need to be packed up and stored. You can read more about that in Chief Archivist Jane Odom's section below. About the time that the HRC closes, we'll also be moving the civil servant staff offices back up to the newly renovated fifth floor. (Don't worry about the archival staff; they will still be working from a temporary location throughout the renovation of the HRC.) The good news is that we'll all have newly renovated and improved workspaces by next spring. Most important, the HRC will have a new compact shelving storage system (good riddance to those creaky old Lektrievers) and a better-organized workspace for both the staff and visiting researchers. The bad news is that it will be a bumpy road between here and next spring. I'll ask your patience with us while we make this trip because I know we'll all like the destination.

The timing of these newsletters is such that we always seem to be saying goodbye to one set of interns while welcoming the next set. This summer, Drew Simpson wrapped up work with us at the end of July and then moved his family to Pennsylvania for a teaching position at Duquesne University. Cody Knipfer was with us until 10 August but then took a short and well-deserved break before starting his junior year at McDaniel College. They have both been great assets and have done a phenomenal amount of work. You'll be seeing the fruit of their labors in the

NASA History Program Office interns Cody Knipfer (left) and Andrew Simpson (right) meet with veteran spacefarer Tom Marshburn, most recently of Expedition 34/35.

coming months as we push out some long-delayed projects and make some significant changes to our Web presence. Both of our fall interns started in the second half of August. Joey Vars, a history major starting his junior fall semester, will be here full-time while he continues his studies virtually at the University of South Florida. Maria Seidel, a George Washington University senior majoring in English with history and Spanish double minors, will be here with us on Mondays and part of the day on Wednesdays and Fridays.

One of the things our interns have helped with this summer is preparing the Great Images in NASA (GRIN) Web site for movement to a new platform. Our original stand-alone software platform was no longer being supported by the vendor and was becoming a headache in many ways for our information technology folks. Advances since GRIN was created also made some of its unique functionality less essential. We expect to have GRIN available at the "NASA on The Commons" Flickr site (*http://www.flickr.com/photos/nasacommons/sets/*) by the end of the year. We were unsure how long this transition would take, but intern Cody Knipfer was a real speed demon with embedding metadata into the GRIN imagery. We're currently reviewing the data before the site goes live.

It is also that time of the year when our professional society partners announce the winners of the aerospace history fellowships for the next year. For many years, the NASA History Program has been supporting three graduate student fellowships that are administered by the American Historical Association (AHA), the History of Science Society (HSS), and the Society for the History of Technology (SHOT). The fellowships are designed to encourage and support talented graduate students in their research on aerospace history topics. You can read elsewhere in this newsletter about the fellows selected this year. What I would like to draw to your attention here is that these fellowships have made a significant difference in the work lives of at least 37 scholars, many of whom have gone on to make important contributions to the field. Although the HSS and SHOT fellowships have been in place for only half a dozen years, the AHA fellowship dates back to 1986. The fellowship program has been a small investment in the discipline, with a big payoff. I'm impressed with the wisdom and tenacity of my predecessors in creating and building these fellowships. We put summer intern Drew Simpson to work on writing up an article on the long-running AHA fellowship. He's done a fantastic job of telling this little-known and important story—which you'll get to read in the next newsletter.

Our quarterly history brown-bag program continues to feature some very interesting presentations. In mid-May, we had the pleasure of hosting a presentation by Professor Asif Siddiqi called "New Research on Soviet Space History: Revisiting the Flights of Tereshkova and Komarov." Asif has been a great supporter of the NASA History Program for many years, and his presentation, which came just before the 50th anniversary of the Tereshkova flight, was extremely helpful. Our speaker for the third quarter of this calendar year will be Dr. Mike Neufeld of the National Air and Space Museum. He'll be giving us a preview of his latest research on the origins of the New Horizons mission to Pluto.

Historical Reference Collection

By Jane Odom

In the Headquarters Archives, the staff continues to prepare for an upcoming move as part of a broader building renovation by the property owner. The latest information we have is that the History Office renovation will begin in early November, several months earlier than previously planned. With that date in mind, packing will begin in August and will impact archival operations greatly. Nearly everything in the office will have to be packed and stored off-site for 6–8 months. Very limited reference assistance will be offered, with staff only able to conduct searches in the digital repository. Check this space and our Web site for periodic updates.

Reference services are brisk at Headquarters. During the last quarter, we hosted an average of a dozen people per month who came in person to conduct searches (the majority of our reference requests arrive by e-mail). We had research visits by staff from NASA Headquarters, Goddard Space Flight Center, the National Air and Space Museum, and George Washington University; by an Australian author; and by students from International Christian University in Tokyo, Justus-Liebig University Glessen in Germany, and University College London.

A number of archival processing projects that researchers will find of interest either are under way or have been completed recently. The processing (arrangement, description, and preservation) of several collections is complete. One is a large collection of material on the Centennial of Flight Commission activities from the early 2000s; the other is a small life sciences collection from the 1980s and 1990s. In preparation for the move, the archivists are busily scanning and weeding select documents in an effort to reduce volume.

I have been extremely busy recently with acquisitions from the Science Mission Directorate as it relocates temporarily during the building renovation. Recent acquisitions include a small collection of former Chief Scientist Frank McDonald's papers, material on Keck Observatory in Hawaii and the Large Binocular Telescope in Arizona, and files on a number of planetary science programs and projects. Most notably, I acquired a large collection of historically valuable papers of former NASA official and Chief Scientist Dr. John Naugle. The family donated this textual collection and also an artifact collection after Naugle's recent death. Leta Serafim, Dr. Naugle's daughter, made a trip to Washington in May to present several special artifacts in person to the History and Artifacts Program

Leta Serafim and Jane Odom visit the Headquarters History Program Office.

staff. When the collection is processed, it will be an exceptional historical resource for those interested in NASA's scientific endeavors in the first 35 years of the Agency's existence.

Ames Research Center (ARC)

By Glenn Bugos

The NASA Ames legacy in entry vehicles was on display at the 10th International Planetary Probe Workshop in June, hosted by the San Jose State University. The scientific program was flush with Ames staff explaining their long string of experiments on the atmospheres of other planets, as well as advances in the challenge of landing spacecraft on other planets. Thanks to the work of Ames engineer Tony Strawa, the nearby Tech Museum of Innovation added some probe-related artifacts to its popular exhibit on space exploration. This included a full-size mockup of the Galileo probe, blunt body shapes tested in the Ames Hypervelocity Free Flight Tunnel, and a display on the Ames arc jets.

One highlight was the Alvin Seiff Memorial Award, which was presented to honor a lifetime of using probes to illuminate our understanding of planetary atmospheres. It is named after legendary aerodynamicist Al Seiff, the founder of the field of planetary probes and principal investigator on the atmosphere structure experiments for Mars (Viking), Venus (Pioneer Venus), and Jupiter (Galileo). The award was presented to another Ames legend, James Arnold, who was hired by Seiff when he was fresh out of the University of Kansas in 1962 to help refine the reentry profile of the Apollo capsule. Arnold's work is fundamental to the entry problem, notably in bridging the disciplines of chemistry and aerothermodynamics. Among the ways the History Office supported the festivities was in supplying photographs from our collections of Al Seiff's papers and from the Planetary Atmospheres Entry Test (PAET) project, a precursor of all planetary probes.

The request for proposals (RFP) to reskin Hangar One and to make use of Moffett Federal Airfield was released on 22 May by the General Services Administration. Keith Venter, the Ames Historic Preservation Officer, marshaled many resources to make the RFP a reality. I helped with documentation on the history of the airfield and its contributing historical elements. Archivist April Gage prepared the Web site to host the RFP documentation (*http://historicproperties.arc.nasa.gov/hangar1/*).

April also accessioned 14 cubic feet of material representing more than 30 years of Ames space life science in partnership with the Soviet Union and Russia using biological satellites. Most of it relates to the Cosmos/Bion missions and was accumulated from the 1970s to the 1990s by the three Ames project managers—Ken Souza, Jim Connolly, and Mike Skidmore. Also included are excellent research files collected by Richard Mains to support his history of the program.

Continuing her professional service, April was recertified by the Society of Certified Archivists. We welcome International Space University intern Luke Idziak, who has an interest in history. Additionally, the restored *Mars in 3D* movie starred in a major public concert at a local movie theater, featuring Tori Hoehler speaking on Mars imagery.

In other news of note, some of the few structures around ARC that really screamed "Space Age" were torn down: the four massive gas and vacuum balls that stood outside the 3.5-foot hypersonic wind tunnel. Several people who have been of great assistance to the History Office over the years are retiring: Jim Connolly, who worked for NASA for more than 50 years on life science instrumentation and as the Cosmos/Bion project manager; Eugene Miya, an excellent source of guidance on matters of computer history; Ann Clarke, who knew much about the built and natural environment at Ames; and Mike Mewhinney, longtime Ames news chief. We also note the passing of Edie Watson, who started with the National Advisory Committee for Aeronautics (NACA) in 1945, served as secretary to Center Directors Harvey Allen and Hans Mark, and exemplified the true spirit of Ames. In 1975, Edie undertook the compilation of historical materials from all the branches of the Center—an archive that remains very useful today.

Dryden Flight Research Center (DFRC)

By Christian Gelzer

Peter Merlin submitted his completed manuscript of *A New Twist in Flight Research: The F-18 Active Aeroelastic Wing Project* to NASA Headquarters for final edits, following export control approval at Dryden. Part of the NASA Aeronautics Book Series, the book should appear sometime late in 2014. He also presented "Human Factors in Accidents Involving Remotely Piloted Aircraft" at the Aerospace Medical Association's 84th Annual Scientific Meeting in Chicago, Illinois, an abstract of which has been published in *Aviation, Space, and Environmental Medicine*, vol. 84, issue 4, April 2013. On request, he has been distributing copies of his most recent books, *Breaking the Mishap Chain* and *Crash Course*, to the U.S. Air Force Test Pilot School, various human factors personnel at the Global Vigilance Combined Test Force, representatives of the NASA Commercial Orbital Transportation Services office, and Sierra Nevada Corporation, which recently brought its Dream Chaser lifting body to Dryden for testing.

Glenn Research Center (GRC)

By Anne Mills

The documentation of the Plum Brook Small Hydrogen sites is nearing completion. The project will cover the Rocket Pump Research Facility, the Rocket Turbopump and Pump Research Facility, the Rocket Turbine and Controls Research Facility, the Dynamics Research Stand, the Hydraulics Research Facility, the Pilot Plant,

the Fluorine Pump Research Facility, the Rocket Systems Research Facility, and the Cryogenic Propellant Research Facility. In the early 1960s, this collection of facilities was instrumental in the development of liquid-hydrogen propellant systems. These facilities, as well as GRC's early history in pioneering the use of liquid hydrogen, are being documented in response to the demolition of the buildings. A book-length manuscript is in the final stages and, we hope, will be eventually included in the Monographs in Aerospace History series. A companion Web site is also being created.

For those who are familiar with his books in the NASA History Series, it is no secret that Robert Arrighi has the unique ability to combine his years of experience as a diligent and thorough researcher and historian with his remarkable skills as a storyteller to capture the rich history of NASA, its mission, and its valuable historical cultural resources. For this reason, Arrighi is being awarded one of NASA's highest honors, the Exceptional Public Service Medal. Please join us in congratulating him for this well-deserved honor!

Jet Propulsion Laboratory (JPL)

By Erik Conway

On 21 June, I participated in a symposium at GALCIT, the Graduate Aeronautical Laboratory of the California Institute of Technology (Caltech), held to celebrate the life of Theodore von Kármán. Von Kármán was GALCIT's first director, recruited to Caltech in 1930 to create what was then known as the Guggenheim Aeronautical Laboratory at Caltech. I spoke on von Kármán's role in the two World War II–era rocket projects at Caltech. One evolved into the modern JPL, and the other, rarely remembered now, became the China Lake Naval Weapons Center.

Blaine Baggett, JPL's Executive Director for Communications and Education, and I have also been working on the next documentary in our series on JPL's history. This next one examines the six-year period of Bruce Murray's tenure as Director of JPL, 1977 to 1982. It focuses on his efforts to keep JPL afloat financially as planetary science budgets were being cut to finance the development of the Space Shuttle.

My next book manuscript, tentatively titled *JPL and the Exploration of Mars*, has been submitted to Johns Hopkins University Press for consideration. I also submitted an article on the use of simulation in the design of the Viking landers to Mars for peer review. While waiting for those reviews, I will resurrect my Surveyor program history effort and move it forward.

Finally, in May, I was elected to the History of Science Society Council, to serve from 2014 to 2016. I will be representing the interests of those in history positions outside academia.

Langley Research Center (LaRC)

By Gail Langevin

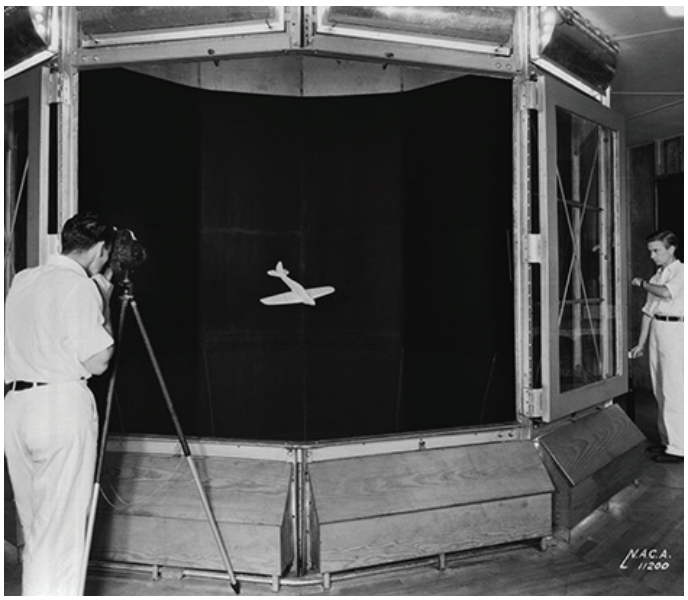
The city of Hampton held its annual "Hunt for Hampton History" event Saturday and Sunday, 4 and 5 May. The Hampton History Museum invited city groups, neighborhoods, and businesses to set up displays. Langley brought a wind tunnel fan blade, Space Shuttle models, an old diving suit used in the former 8-Foot High Speed Tunnel, and several photographs of Langley's past research. Author James Schultz was on hand to sign copies of *Crafting Flight*. Many people shared memories of childhood visits to the Center. A few shared memories of fathers, uncles, and aunts who had worked at the Center through the years.

Ray Wright in a diving suit used for the 8-Foot High Speed Tunnel, 1950.

Joseph Chambers was invited to present a colloquium at the Center and a Sigma series talk to the public at the Virginia Air & Space Center on the history of dynamically scaled free-flying models in NASA's research programs. Joe traced the history of using free-flying models in various wind tunnels and as models dropped from helicopters.

Langley alumni Duncan McIver, Bill Gilbert, and Ira Abbott, Jr., met with Virginia Air & Space Center interim director Brian DeProfio and curator Allen Hoilman to discuss ideas for an NACA Hall of Fame.

A preliminary committee met to discuss possibilities for the celebration of the 100th anniversary of Langley, which will occur in 2017. The



A free-flying model in the Langley 15-Foot Spin Tunnel in 1935.

committee plans to have a few more meetings before presenting ideas to the Langley senior staff.

Marshall Space Flight Center (MSFC)

By Mike Wright

Brian Odom reports significant progress in transforming the Center's existing archives from a rudimentary stage in use for more than 20 years into a formal archival arrangement. "The addition of 10 new collapsible shelving units has given us the space and flexibility to remove materials from metal filling cabinets, place them into archival boxes, and arrange them into distinctive collections. The process has been richly rewarding and has revealed a wealth of interesting documents and images," Odom said.

As part of his work, Odom has revitalized and cataloged a number of unique collections in the archives. One of the most extraordinary finds is a collection of technical drawings by Fritz Pauli. Pauli, an authority in rocket propulsion, held degrees in electrical and mechanical engineering and worked with the von Braun team at Peenemünde during the period of 1942–45. At the close of the war, Pauli worked in rocket development for the French until 1952, when he rejoined the von Braun group then located in Huntsville, Alabama. Pauli became a U.S. citizen in 1959 and was granted nine patents over the course of his career. The collection of Pauli materials includes a wealth of striking drawings and sketches from his days working for the Army in Huntsville and his many years as special assistant to the director of MSFC's test lab.

Molly Porter in the History Office is working closely with a Center-wide team at Marshall to capture and preserve historically significant motion-picture footage dating to Marshall's formation in 1960. "We estimate that the Center has thousands of tapes and films in need of conversion. Our job is to recommend and prioritize the collection for digital preservation," she said.

Joining the History Program Office for a summer internship is Ja'Vonn Liner. Liner is entering his junior year at Texas Southern University in Houston and is double-majoring in computer engineering and computer electronics. Liner is a native of Sacramento, California, and harbors long-term aspirations for a career in Silicon Valley. He has been a great asset to the office, helping out with essential scanning, filing, and indexing various historical publications.

Stennis Space Center (SSC)

By Daphne Alford

Stennis Space Center's acoustic buffer zone comprises many former towns. One in particular with an interesting historic background is the town of Napoleon.

The first non–Native American to settle in its area was Jean Claude Favre. In records dating to 1767, Favre was the first documented landowner in Hancock County, Mississippi. The location of the Favre claim included the site of the future town of Napoleon.

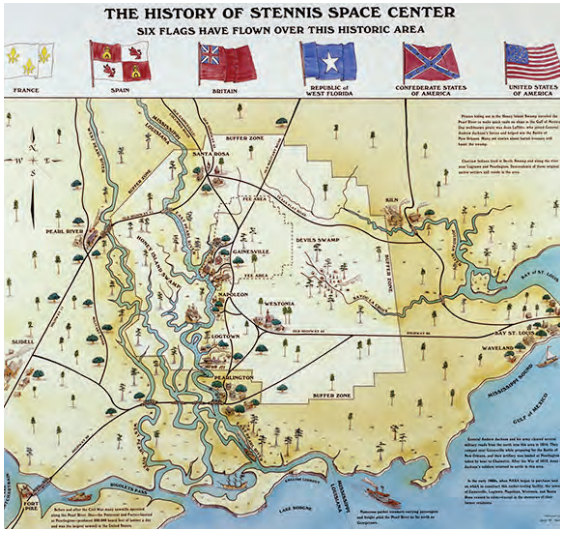
His son Simon Favre became one of the most notable personages in the county. Like his father, Favre was a well-versed linguist. An interpreter of Muskogean languages (Choctaw and Chickasaw), the multilingual Favre translated for the French, British, Spanish, and Americans in the West Florida area that became part of Mississippi and Alabama. He played a significant role during transition of the area from Spanish control to the dominion of the United States.

As a Spanish commandant of the Pearl River, Favre was appointed justice of the peace for the U.S. government in 1811 and approved numerous land grants along the East Pearl River. Favre also is noted in Mississippi history as an interpreter between Andrew Jackson and Native American leader Pushmataha, the famous Choctaw chief of the late 1700s and early 1800s.

In 1812, Favre was appointed lieutenant colonel of the local militia of Hancock County. After his father's death (circa 1782), Favre inherited two plantations on the left bank of the Little Pearl River and on the right bank of the Large Pearl River. In about 1806, some six years after his marriage to Celeste Rochon (also spelled "Rouchon" in Favre's 1812 will), he began living on and cultivating the land. Favre is believed to have built the first house and store (a facility for processing pine resin for turpentine, rosin, pine pitch, and other products) at what later became Napoleon. The store is thought to have later become the back of Napoleon Baptist Church.

As listed in Jerry Heitzmann's *The Favre Family*, six children were born to the union of Simon Favre and Celeste Rochon. Previously, he had fathered one child with Rebecca Austin and six children with Pistikiokonay, daughter of Chief Pushmataha.

Today, some of Favre's descendants still reside in neighboring cities near Stennis Space Center and are among the Center's employees. Former Kiln, Mississippi, inhabitant and NFL legend Brett Favre's ancestry traces back to Simon Favre and Pistikiokonay's son Louis.



Six flags (shown above) have flown over this historic area of the Stennis Space Center.

Simon Favre's daughter with Pistikiokonay, Mary Favre, stated that her father died on 21 July 1813 and was buried somewhere on his plantation near the Pearl River. As of July 1989, no one had identified his grave site.

Moffett Air Wing

By Glenn Bugos, NASA Ames Research Center History Office

When NASA took stewardship of Moffett Federal Airfield in 1994, it inherited several historic aircraft that had been on static display around the field. Stretched for funds to restore and maintain them, NASA Ames Research Center partnered with the Moffett Field Historical Society, a tenant of the NASA Research Park. The Moffett Air Wing, a branch of the museum, volunteered to restore the aircraft using work space inside the historic Hangar Three, a World War II–era blimp hangar. NASA's restored aircraft would then be displayed in a secure lot adjacent to the Moffett Field Museum, with the iconic Hangar One as an impressive backdrop.

Recently, the Air Wing completed the restoration and display of an AH-1S Cobra helicopter used as a part source for helicopters tested by the Army aerodynamicists working at Ames, as well as a TF-104G Starfighter used by NASA as a chase airplane. The Air Wing is now finishing work on a Lockheed U-2C Dragon Lady that was flown by NASA to test airborne Earth-sensing equipment and other high-altitude experiments. This particular aircraft also flew carrier suitability tests in 1964 aboard the USS Ranger during the Central Intelligence Agency project "Whale Tale." In NASA service, and while deployed from Punta Arenas, Chile, it flew the famous ozone air-sampling missions over Antarctica, which confirmed that chlorofluorocarbons (CFCs) were depleting the stratospheric ozone layer.

Working inside Hangar Three, the Air Wing next will restore a P2V-5 Neptune, which will then be remounted in front of the Moffett flight control tower. The P2V was the workhorse aircraft in the Navy's antisubmarine campaign over the Pacific during the early years of the Cold War. Still mounted outside the flight control tower is an exemplar of the aircraft that superseded it, a P-3A Orion. Though the exterior still needs work, the Air Wing has almost completely restored its interior and made it available for tours.

Other aircraft awaiting attention from the Air Wing are an ex–Blue Angel F/A-18 Hornet used in full-scale wind tunnel tests at Ames, a vertical attitude takeoff and landing model more than 10 feet long, and one of the few surviving gondolas from a World War II blimp.

Leading the charge to restore the aircraft are Lou Somontes and a dedicated group of about a dozen volunteers. Somontes spent his career with Navy Patrol Squadron VP-91 at Moffett Field as a structural mechanic on the P-3 Orion. In retirement, he

has developed a passion for cockpits and has devised many novel techniques for fabricating panels from scratch. It helps that none of the aircraft will return to flight; they are only for display. Larry Salter, another steadfast volunteer, started at Ames in 1971 and rose to maintenance crew chief for the U-2 and for the ER-2s that superseded it. Jonathon Plambeck, whose grandfather was an expert on life-support systems for the U-2, also often helps with restoration puzzles.

Somontes has friends spanning the globe who help track down parts. Often, he can get them donated, and sometimes they are bought with a small fund of cash donations. For the U-2, he has successfully acquired a throttle quadrant, a tailhook, and many instruments. For the P2V, he is still in quest of an identify-friend-foe (IFF) transponder, autopilot control boxes, rearview mirrors, and many interior parts. The Starfighters, a company conducting experiments for NASA at Kennedy Space Center, donated several used tires. Often, services are donated. A local sign company makes the decals. The 129th Rescue Wing of the Air National Guard, which shares Hangar Three, helped in lifting the F-104G and doing wheel buildups and considers this work to be excellent training exercises.

The group is always looking for donations of materials, tools, and money, as well as volunteers they can train to assist with restorations. Contact the Moffett Field History Society Air Wing at *papalousomontes@yahoo.com*.

On the left: Lou Somontes by the cockpit of the NASA U-2. Right: The NASA U-2 being restored for return to display. The wings, to the right, were removed to help transport it around new fences on Center property.

Larry Salter, former maintenance crew chief for the NASA U-2 aircraft, shown helping with its restoration at the Moffett Air Wing in Hangar Three.

The Value of Gaining New Perspectives

By Stephen Garber

During the last year, my bosses supported my plan to do two career-broadening detail assignments. From April to October 2012, I worked in NASA's Office of Legislative and Interagency Affairs (OLIA) supporting the Science Mission Directorate (SMD), and from November 2012 to April 2013, I worked in the Office of the Secretary of Defense's (OSD's) space policy office. Both details were excellent opportunities in many ways, broadening and refreshing my perspective on history and NASA and enabling me to bring back useful knowledge and experience to NASA and the History Program Office.

In OLIA, I felt confident I could contribute quickly, as I had worked on Capitol Hill and had started my NASA career in SMD. Although I still had much to learn, my years of experience at NASA and my start in SMD were particularly helpful, as I already knew many of the NASA staffers with whom I worked in new capacities.

My OLIA colleague Shannon Valley and I quickly divided our coverage of the large science portfolio. Shannon's background is quite different from mine, and working with her was my favorite part of the job. She was instrumental in helping me in my dealings with congressional staff. While executive-legislative branch interactions may seem mysterious to many outside of Washington, there's no secret formula to working with congressional staff. (Certainly, we work much more with staff than with the members of Congress.) And it may surprise some (probably particularly beyond the Capital Beltway) to know that these staffers were quite supportive of NASA and that the relationship was professional and cooperative, not adversarial. Yes, Hill staffers are busy and are not subject matter experts, but the Hill staffers I met usually asked excellent questions informed by their deep and broad knowledge. Because of their wide portfolios, Hill staffers are very amenable to being briefed on whatever NASA thinks is important so they can get up to speed.

One important distinction to note is how OLIA deals separately with authorization and appropriations staff members. I worked in the OLIA division that covers authorizing staffs (House and Senate science committees and space subcommittees). While we certainly worked closely with our OLIA appropriations colleagues, I recall one program manager expressing dismay and frustration at this arrangement. It's understandable that program managers might not want to conduct four separate briefings (House and Senate, authorization and appropriations) on the same subject, but this fact of life is more reflective of Congress than of OLIA. In addition, although it may seem organizationally or functionally awkward, in reality, the authorization and appropriations staffs work independently, so it makes sense to handle them this way.

After my tenure with OLIA, I moved over to the Pentagon, an environment I knew to be quite different from that at NASA, for six months. Many of my stereotypes about the military, such as its hierarchical, complex bureaucracy, turned out to be largely true, but I didn't know how all this would play out in practice. (For more on my personal observations about the Pentagon's organizational culture and what we can learn from it, please see my article in the NASA Academy of Program/Project and Engineering Leadership's *ASK* magazine.) But, literally every day I spent at the Pentagon, I learned new subject matter and ways of doing business.

At the U.S. Department of Defense (DOD), I needed to learn a considerable amount about various aspects of orbital debris and space launch policy (I'm lumping together the miscellaneous NASA-DOD coordination issues I worked as only one "half" of a big portfolio issue compared to these other two). In DOD parlance, I took a "deeper dive" on these two issues rather than just knowing a little about many history issues. Although this could be a little overwhelming at times, I enjoyed the learning experience and treated orbital debris and space transportation as two issues I needed to research.

History definitely came into play in various ways while I was working on space policy at the Pentagon. After my DOD boss asked me to serve on a team looking at space launch architectures and how many launch vehicle "families" are needed, I became a little puzzled because I felt out of my league in terms of "solving" the perennial issue of "assured access to space." However, my boss reassured me both that the ultimate policy decisions in this area would be made by more senior staff and that sometimes it is indeed worth considering reinventing the wheel. After he had thus given me this green light to consider the long history of this subject, I found an excellent historical overview of assured access to space written by a retired general with deep knowledge of this area that I then shared with the team, along with the list of key reports and policy documents at *http://history.nasa.gov/spdocs.html*. Another team member developed an excellent summary of the key points of a number of blue-ribbon commission reports on the subject. I was heartened to see that most team members had considerable experience in their specific subject areas and knew how to bring to bear effectively their institutional history/knowledge.

History is ingrained in the military culture, which I knew in some ways before I went on detail but didn't fully understand. I knew, for example, that the DOD section of the Society for History in the Federal Government directory is quite large and that DOD has historians documenting virtually all of its major installations and organizational units. When I was in the OSD space policy office, I didn't have occasion to work with any of these historians (although I did seek out and receive fantastic help from a former NASA librarian who now works for DOD). Rather, some might say that history is infused into how the military operates. One day, while I was walking back to my desk after attending an interesting lunchtime lecture, a military officer in my office commented (without knowing my background) that everybody in the military fancies himself a historian. This appreciation of history, even an

implicit one, helps DOD personnel put current events in context. Another day, I attended an outstanding talk by a leading Civil War scholar about President Lincoln and the Emancipation Proclamation, something which might not seem directly relevant to most of the attendees in the large Pentagon auditorium but was in fact made germane by the discussion of the social factors affecting the Civil War.

Overall, these two details were great experiences. I learned a great deal about how federal business is conducted on Capitol Hill and across the Potomac in the Pentagon. I hoped to gain a wider appreciation of the role history plays in shaping policy and was richly rewarded. Bill Barry has also been quite amenable to some ideas I have to give history a seat at the NASA policy table, as it were. My two details reinforced arguments made in the "Thinking About NASA History" folder that our office produced more than a decade ago and in some excellent memos written by former NASA Chief Historian Roger Launius before that: that it can only help to have better and more frequent interactions between policy and history staff, as well as more explicit historical thinking, in our aerospace policy discussions.

Langley's Richard Whitcomb Makes History

By Alejandra Grey, Cultural Resources Intern,
NASA Langley Research Center

A cabinet marked "Richard Whitcomb Personal Files" was recently discovered at NASA Langley Research Center (LaRC) in a building being cleaned in preparation for demolition. From those files emerged the story of one of our most widely known researchers.

Rarely can it be said that one man has changed the course of an entire industry, especially a science like aerodynamics, where every mind is great and every discovery an advancement, but Dr. Richard Whitcomb did exactly that. As a young research engineer at the National Advisory Committee for Aeronautics (NACA) at Langley Field in Hampton, Virginia, Whitcomb stated boldly that he "wanted to make an impact." In the six decades since Whitcomb began his illustrious career, few have contributed more or made such influential discoveries. He committed himself completely to faster, more efficient flight and left behind a legacy of fundamental aerodynamic concepts that are still used in today's fighter planes and commercial jetliners. Whitcomb's area rule, supercritical wing, and winglets—one invention for each of the decades he spent at Langley—helped to establish the NACA (incorporated into the new NASA in 1958) as an international leader in flight research and technology.

Whitcomb started out as a boy like any other. He played sandlot sports and enjoyed sailing. He also dreamed of becoming an inventor, which was something of a family interest—his grandfather was an inventor and his uncle a patent attorney who worked in Washington. He began inventing before he had even mastered the basics of mathematics and physics—a light-catcher made of mirrors lit his room from outside a small window, and the little bus money he saved by walking 3 miles home from school paid for supplies he needed for his many projects.

Whitcomb's well-documented love of model airplanes blossomed under the tutelage of his Boy Scout troop leader. (Whitcomb was a Life Scout). He designed, built, and displayed the models in his basement "workshop" and, along with his friend Harold Crane, was soon running city and regional model airplane contests. These competitions featured events for indoor and outdoor gliders, rubber-powered craft, and even gas-powered models. Whitcomb continued to build planes through middle school (Belmont Preparatory for Advanced Students) and high school (North High School), where he also joined the Aero Club.

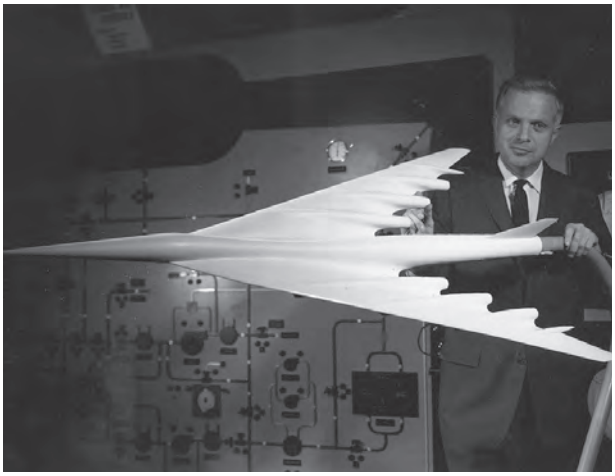
After high school, Crane and Whitcomb both attended Worcester Polytechnic Institute, where Whitcomb studied mechanical engineering. He worked during the summer months for various manufacturers, including Norton Company, as a lathe operator and parts chaser, and although his grades were not spectacular by today's standards (he maintained a B average), he graduated in 1943 with "high distinction." Crane had recently visited the NACA, and after being hired for work in flight aircraft research, he wasted no time informing Whitcomb that "this was the place to be." Whitcomb agreed and submitted his application to the NACA immediately upon graduation.

Stubborn and driven, Whitcomb refused the first position offered to him in the flight instrument division, insisting instead that he be appointed to aerodynamics. His request was granted, and this highly unusual exception immediately paid off. Whitcomb's supervisors noted his exceptional performance, and he was soon tasked with aerodynamic research in the 8-Foot High Speed Tunnel.

Whitcomb's supervisors were not the only ones to take notice of him; by that time, the United States was heavily involved in World War II, and in February 1944, Whitcomb was contacted by the Committee on Scientific Research Personnel of the War Manpower Commission. His name had been added to the Reserved List, a selection of scientific research and development workers engaged in essential war activity. This designation was a "strong suggestion" from the U.S. government that Whitcomb remain involved in "research and development on instruments of war or associated activities" and dictated that he not transfer to any other organization without first informing the Commission. These conditions were likely not of much concern to Whitcomb—who had only just arrived at the NACA and very much wanted to remain there—and his new status did not come without benefits. The War Manpower Commission contacted the Director of the Selective Service System on Whitcomb's behalf, requesting that he be placed in

a “deferred” classification until such time as his occupational status changed. For Whitcomb, this meant that as long as he remained employed at the NACA, he would not be called to active duty. This arrangement was not unique to Whitcomb; virtually all of the engineering staff at the NACA was covered.

For the next six years, Whitcomb worked closely with then–section head John Stack and, later, his replacement, Eugene Draley, investigating the effects of wing sweepback on performance and stability and the performance impact of a crescent-shaped propeller. Little else is known of Whitcomb’s work during this period, but it was not long before the NACA and Whitcomb jumped onto the aeronautics scene in a big way.



Whitcomb with model for area rule concept, 1959.

Until the 1950s, aircraft were powerful but were limited by the sonic barrier that prevented them from flying faster than the speed of sound—the combined drag of the planes’ components was too great. Efforts by the U.S. Air Force to solve the drag problem were less than successful, so the NACA scientists were called in. Years later, Whitcomb stated in an interview that the scientists knew that “bullets [went] through the speed of sound all the time,” but traditional bullet- or cigar-shaped plane bodies behaved differently. He realized that if they were going to achieve something they had never seen, they would have to try something they had never done, and that new something came to him “like a flash of light.” Asked about that moment, Whitcomb said, “I sat at my desk, feet propped up, and suddenly it dawned on me, the basic idea of the area rule.” He reasoned that if he did not want air to push back on the wing, he would have to give it someplace else to go. He imagined that a “pinched waist” or slimmed fuselage would allow air to flow away from the wing, reducing drag.

Whitcomb presented his area “rule of thumb” to his colleagues, built a base model, and modified it with various fuselage shapes for testing. The most efficient had an area drag nearly equal to that of the wing and introduced a new era of transonic and supersonic flight capability. In 1953, the delta-winged Convair F-102 was expected to intercept Soviet bombers at speeds reaching Mach 1.25. Unfortunately, the prototype slowed when approaching the speed of sound. The extensive redesign, which allowed the aircraft to easily accelerate through the speed of sound, was based on the work of Whitcomb and his area rule principles.

He was awarded the Collier Trophy in 1954 for his area rule discovery but was not content to rest on his laurels. His research could not have been completed without the then-active NACA wind tunnels, most importantly the slotted-throat 8-Foot Transonic Pressure Tunnel, and he was not ready to leave such unbelievably useful tools behind.

Whitcomb's success regarding the area rule earned him a reputation for ingenuity and afforded him unprecedented flexibility. He was allowed to experiment as he pleased in whatever areas appealed to him. He became the head of the 8-Foot Transonic Pressure Tunnel, gaining more responsibilities and resources to explore freely, paving a quick path to his next creation, the supercritical wing.

Whitcomb with modified F-8 Crusader model used to assess the performance of a supercritical wing for civil transport, 1970.

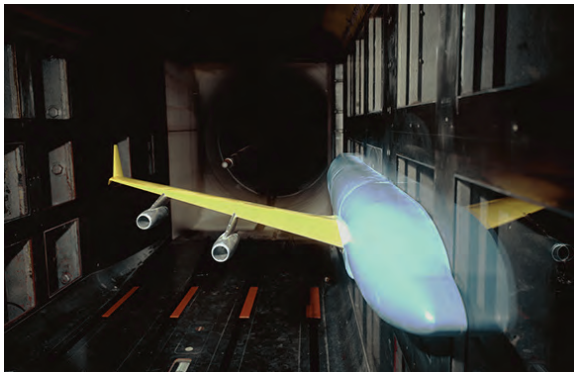
With its distinctive flat top and rounded bottom, the supercritical wing design further reduced drag and increased lift. It took Whitcomb three years to perfect his design, during which he often worked 16-hour days; furthermore, not wanting to drive home only to turn around and go back, he slept on a cot near the Transonic Pressure Tunnel between tests. Unlike other engineers of the day, he did his own calculations and filed the wind-tunnel models himself—he was so adamant about this that Neil Armstrong referred to Whitcomb as "the master filer."

This personal attention to detail was apparent in every aspect of Whitcomb's work. As a supervisor (he advanced to the position of department head within 15 years of arriving at the NACA), Whitcomb understood the importance of factors like team morale and its impact on productivity. He filed formal requests that cigarette and ice cream machines be installed in the buildings where his workers spent most of their time and even dictated which brands should be stocked in them. In one instance, when it was necessary for his team to work overtime, Whitcomb requested that his employees be allowed to bring their families to work for a tour so that they could see what his employees were doing with all their time away from home.

With a second groundbreaking development on his résumé, Whitcomb could have easily spent the remainder of his career as an administrator, but he continued to work; write technical reports; conduct research; and, inevitably, amass awards—though the latter tended to collect dust in his desk drawers. His many accolades include the U.S. Air Force Exceptional Service Medal, the NACA Distinguished Service Medal, the Wright Brothers Memorial Trophy, and the Howard N. Potts Medal. He was presented with two honorary doctorate degrees and was inducted

into both the National Inventors Hall of Fame and the National Aviation Hall of Fame (posthumously).

Whitcomb accepts the National Medal of Science from President Nixon. (White House photo from Whitcomb personal files)



Winglet model tested in 8-Foot Pressure Tunnel.

Whitcomb's third revolutionary invention, the winglet, is perhaps the most widely displayed tribute to his long and distinguished career—winglets adorn nearly every commercial airplane in use. British engineers in the late 1800s imagined that a plate attached to the end of a wing could theoretically diminish drag, effectively reducing fuel consumption and increasing speed; however, it was Whitcomb who revised this concept in the mid-1970s for commercial use. He published his findings in 1976, claiming that winglets could improve the drag ratio of even large aircraft by as much as 6 to 9 percent. Flight testing by NASA, the U.S. Air Force, and various aircraft manufacturers proved the validity of Whitcomb's idea, and the small additions to aircraft wings became known as "Whitcomb's winglets."

Winglets completed Whitcomb's invention trifecta, but his research did not end there. In 1980, before he had even formalized his retirement plans, he filed the necessary paperwork to remain at NASA in a research and consulting capacity. This pseudo-retirement allowed him to spend fewer hours at "work," and he used his free time to build a laboratory in his apartment, where he experimented with chemical physics and energy conversion in ordered crystals. Though he did not publish his findings from this period, his notes can be found in collections at various institutions including Worcester Polytechnic Institute.

Whitcomb died of pneumonia on 13 October 2009 in Newport News, Virginia. He never married, but he is survived by one of his sisters, several colleagues, and the countless Americans who have benefited from his work. For more on this renowned NASA researcher, including two videos, visit *http://crgis.ndc.nasa.gov/historic/Richard_Whitcomb*.

Barron Hilton Flight and Space Exploration Archives at Purdue University

By Tracy Grimm

The Purdue University Libraries have collected primary source materials on the history and development of powered flight since the gift of aviator Amelia Earhart's papers in 1940 by her husband, George Palmer Putnam. Over the decades, the number of archival collections has increased to reflect the steady growth of faculty and alumni contributions to the development of flight and, later, space exploration.

Purdue University's connections to aviation are rooted in the field's earliest developments. In 1908, Purdue graduate Cliff Turpin worked with the Wright brothers on lighter and more efficient engine design. One of the first military and civilian test pilots, James "Jimmy" Johnson, was a 1907 Purdue graduate. With a senior thesis called "An Efficiency Test of an Allis-Corliss Engine," Johnson went on to learn to fly at the Curtiss School; worked as a test pilot at Langley Field, later McCook Field (1917–1920); and also worked for independent airlines until the 1950s. Frederick Martin, a 1924 graduate, commanded the first round-the-world flight. In 1930, Purdue University opened the first university-owned and -operated airport in the United States, and in 1937, it helped to fund the first world flight attempt by a woman—Purdue's visiting faculty member, Amelia Earhart.

During the Cold War and space race of the 1950s and later, Purdue faculty members and graduates conducted key propulsion research, set records as test pilots, and worked as engineers in a variety of areas related to national defense and space exploration. In 1956, Purdue graduate Iven Kincheloe, Jr., a test pilot in the Bell X-2 program, became the first man to fly above 100,000 feet and was referred to as America's "first spaceman." Since Kincheloe's record-setting flight above Earth's atmosphere, 23 Purdue alumni have followed by joining the astronaut corps. Mercury Seven astronaut Virgil "Gus" Grissom was the first alumnus selected; Scott Tingle is the latest. Perhaps most notable on this list are aeronautical engineering graduate Neil Armstrong, the first astronaut to walk on the Moon, and electrical engineering graduate Eugene Cernan, the last astronaut to walk on the Moon—both of whom have placed their personal papers with Purdue Archives and Special Collections.

In recognition of the unique role Purdue University has played in the history of aeronautics, endowed funding was secured in 2011 to formally establish a flight and space exploration archival collection and to create the dedicated position of Barron Hilton Archivist for Flight and Space Exploration. Since the formal establishment of the Barron Hilton Flight and Space Exploration Archives, new acquisitions and

additions to existing collections have increased significantly. In addition to the papers of Armstrong and Cernan, recent acquisitions include the papers of astronauts Roy Bridges, Jr., Jerry Ross, and Janice Voss, as well as the papers of a number of engineers and faculty members who have made significant contributions in a multitude of fields related to the development of aviation and the U.S. space program.

The largest acquisition to date, the Neil A. Armstrong papers addition, was received in fall 2012, following the unexpected death of the Purdue alumnus. The papers document Armstrong's education, naval career, test-pilot work, and contributions to the Gemini and Apollo programs, as well as his post-NASA teaching, writings, and speeches. A significant portion of the collection is composed of fan mail received over his lifetime. The collection, composed of more than 180 cubic feet of personal papers, remains closed as the materials are examined, rehoused, and described and as preservation measures are taken. However, processed portions of the collection are expected to open to students and researchers beginning in fall 2013. Series that we anticipate opening in the fall relate to Armstrong's education and years as an experimental test pilot.

Other recent acquisitions include the Jerry L. Ross papers, significant additions to the Roy Bridges, Jr., papers, and the papers of Purdue mechanical engineering professor Charles "Chuck" Ehresman. The Jerry L. Ross papers document Ross's education, his work as a test-flight engineer, and his NASA career, which began before the first Space Shuttle launch and lasted until shortly after the last landing in July 2011. An oral history interview with Ross as well as an online exhibit related to his collection can be found on Purdue's Archives and Special Collections Web site (URL provided at the end of this article). The Roy Bridges, Jr., papers additions include 16 cubic feet that document the career and contributions of Bridges, a former astronaut, Director of the John F. Kennedy Space Center, and Director of Langley Research Center. The most recent Flight Archives acquisition, the Charles Ehresman papers, contains 40 cubic feet of research papers, manuscripts, films, photographs, and reports documenting Ehresman's Aerojet-General Corporation work from 1951 to 1964 and his teaching and research at Purdue. At Aerojet, Ehresman participated in the development of liquid-assist takeoff rockets, superperformance liquid rockets, and other launch vehicle systems for programs including the Saturn V. After joining the faculty at

X-15 test pilot Neil Armstrong at Edwards Air Force Base ca. 1961. (Neil A. Armstrong Papers, Purdue University Libraries, Virginia Kelly Karnes Archives and Special Collections Research Center)

Purdue in 1964, Ehresman oversaw the design, construction, and operation of an expansion of Purdue's Jet Propulsion Center, now the Maurice J. Zucrow Laboratories, and taught rocket propulsion for spaceflight, among other courses. Ehresman was a teacher and mentor for many Purdue students who went on to work in space-related fields, including astronaut Jerry Ross. Related to this new collection is a 2008 interview with Professor Ehresman conducted as part of the Purdue Archives and Special Collections Oral History Program.

The Hilton Flight Archives at Purdue are young but ambitious. Our goals include building a world-class collection documenting flight and space exploration, as well as facilitating enhanced, creative, and broad use of our collections to stimulate knowledge and scholarship. We welcome and will work to develop collaborative and cooperative initiatives with related archives and libraries, historians, museums, and educators. For more information about the Barron Hilton Flight and Space Exploration Archives at Purdue University, please contact archivist Tracy Grimm at *grimm3@purdue.edu* or visit the Virginia Kelly Karnes Archives and Special Collections Research Center's Web site at *http://www.lib.purdue.edu/spcol*.

Other Aerospace History News

National Air and Space Museum (NASM)

By Mike Neufeld

Roger Launius (Space History Division) has been appointed Associate Director for Collections and Curatorial Affairs and oversees NASM's curatorial, research, collections, and archives departments. He continues to be a member of the Space History Division and is keeping his collections responsibility for robotic lunar and planetary spacecraft. He recently published an article: "Public History Wars, the 'One Nation/One People' Consensus, and the Continuing Search for a Usable Past," *OAH Magazine of History* 27, no. 1 (January 2013): 31–36. This is available online at *http://maghis.oxfordjournals.org/content/27/1/31.full*. Peter Jakab (Aeronautics Division), who just completed a five-year term in the Associate Director position that Roger now holds, has been appointed to the position of Chief Curator.

Tom Lassman (Space History) has published "Reforming Weapon Systems Acquisition in the Department of Defense: The Case of the U.S. Army's Advanced Attack Helicopter," *Journal of Policy History* 25 (spring 2013): 173–206.

Edited by Michael Neufeld (Space History), *Spacefarers: Images of Astronauts and Cosmonauts in the Heroic Age of Spaceflight* (Smithsonian Institution Scholarly Press) originated in the 2011 NASA History conference "1961/1981," was published in July, and has the following contributors: Margaret Weitekamp (Space History), Matthew Hersch (University of Pennsylvania), James Spiller (State University of New York at Brockport), Andrew Jenks (California State University, Long Beach),

Guillaume de Syon (Albright College), Trevor Rockwell (University of Alberta), Valerie Neal (Space History), Jennifer Ross-Nazzal (NASA Johnson Space Center), and Margaret Lazarus Dean (University of Tennessee).

The Museum's panel entitled "*Star Trek*'s Continuing Relevance," which was held in the "Moving Beyond Earth" (MBE) exhibit on 16 May, demonstrated that not only is *Star Trek* popular, it's also important for current scholarship and industry. As a franchise, *Star Trek* has drawn upon real history for its narratives and influenced space history through its compelling depictions of a possible future. In an educational panel program Webcast from the MBE stage, four presenters offered brief, compelling insights into how relevant *Star Trek* remains today.

The panelists included

- Nancy Reagin, editor of *Star Trek and History* (2013), who described the latest popular history scholarship included in this new book;
- Mike Gold, chief counsel at Bigelow Aerospace, who explained the parallels between the Bigelow Expandable Activity Module (BEAM) being developed for the International Space Station and *Star Trek* events;
- Margaret Weitekamp (Space History), who showed how the museum's *Star Trek* artifacts illuminate the social and cultural history of spaceflight; and
- Dan Hendrickson, director for Space Systems, Aerospace Industries Association, who revealed why he spearheaded a crowdsourced campaign, which is partnered with the Challenger Center for Space Science Education, to pay for ads promoting human spaceflight to show before new *Star Trek* film screenings.

After the program, Nancy Reagin and Margaret Weitekamp signed copies of *Star Trek and History* at the museum shop.

As a prelude to the Sally Ride tribute event held at the Kennedy Center for the Performing Arts on 20 May, the National Air and Space Museum hosted a program called "Sally Ride: How Her Historic Space Mission Opened Doors for Women in Science" on 17 May. A panel introduced by NASM Associate Director Roger Launius and moderated by Tom Costello of *NBC News* included space history curator Margaret Weitekamp, public policy expert Linda Billings, JSC Center Director Ellen Ochoa, *USA Today* reporter Dan Vergano, and the National Math and Science Initiative's Rene McCormick. Their discussion covered space history, science education, and public policy. NASA Television broadcast the program live, and it may be viewed online as "The Impact of Sally Ride's Contributions in Space and Education" at *http://www.youtube.com/watch?v=4T8X1GksQaY&feature=youtu.be*.

The museum's annual John H. Glenn Lecture was held on 6 June in the Lockheed Martin IMAX Theater in Washington, DC. The evening's featured speaker, former NASA astronaut General Thomas P. Stafford, flew twice during Project Gemini and commanded both Apollo 10 and the Apollo-Soyuz Test Project. Stafford was joined on stage by former Senator John Glenn, the first American to orbit Earth, who also returned to space aboard Space Shuttle Discovery in 1998. In an event titled "Space Exploration from Mercury to the Space Shuttle," these legendary figures in space history reflected on their distinguished careers with museum director General John R. "Jack" Dailey. Topics included the Apollo lunar landing decision made in 1961, the Gemini program flown in the mid-1960s, the Apollo lunar landings, the Apollo-Soyuz Test Project, and Stafford's pivotal role in developing stealth aircraft for the U.S. Air Force. An overflow audience also watched from the museum's planetarium. The archived recording can be viewed at *http://www.ustream.tv/recorded/33945393*.

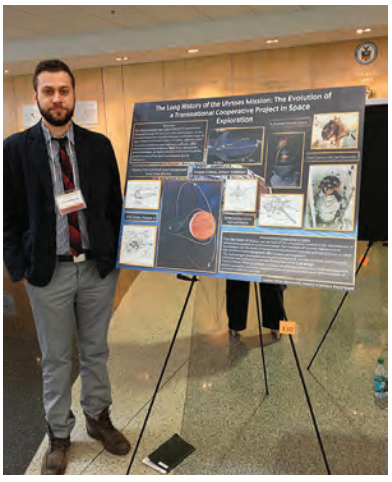
Fellowships in Space History 2013–14

AHA-NASA Fellowship in Aerospace History

A joint committee of the American Historical Association (AHA), the Economic History Association, the History of Science Society (HSS), the Society for the History of Technology, the Organization of American Historians, and the National Council on Public History has selected Dr. Andrew Jenks of California State University, Long Beach, as the 2013–14 Fellow in Aerospace History. His proposal is titled "Stepping Back from the Brink: Transnational Encounters in Space." He plans to study three international collaborative missions during the "late Cold War": Apollo-Soyuz, Interkosmos, and the formation of the Association of Space Explorers.

HSS-NASA Fellowship in the History of Space Science

The History of Science Society's fellowship committee of Craig McConnell (chair), Jim Strick, and Patrick McCray has selected Petar Markovski of the University of Oklahoma as the 2013–14 HSS-NASA Fellow in the History of Space Science. Markovski's project will explore the cooperation between NASA and the European Space Agency, with a specific interest in identifying and analyzing the mechanisms of cooperation that helped create a transnational environment for the creation of new space science research. Our thanks to the fellowship committee for its work and to Bill Barry, NASA Chief Historian, in fostering this collaboration between HSS and NASA.



Petar Markovski.

SHOT-NASA Fellowship in the History of Space Technology

The Society for the History of Technology (SHOT) has selected Margaret A. Rosenburg of the California Institute of Technology for the SHOT-NASA Fellowship for 2013–14. Rosenberg's project is entitled "Envisioning Impact: Lunar and Terrestrial Craters in Historical Context, 1890–1965." It will explore the history of impact craters and planetary science and the role of technology in understanding the impact process.

Recent Publications and Online Resources

NASA Publications

The NASA History Program Office iTunes U site contains free multimedia downloads of important moments, activities, and figures in NASA history. New items include Galaxy Evolution Explorer (GALEX) materials. Search for "NASA History Program Office" in iTunes or use the following link: *http://go.nasa.gov/ROuL7D*.

Smithsonian Publications

Spacefarers: Images of Astronauts and Cosmonauts in the Heroic Era of Spaceflight, edited by Michael J. Neufeld. Beginning at the "1961/1981: Key Moments in Human Spaceflight" (2011) symposium, cosponsored by the NASA History Program Office and the Smithsonian National Air and Space Museum, scholars examined how we have imagined human spaceflight and spacefarers in the media, government propaganda, and popular culture. This book is available through the Smithsonian Institution Scholarly Press or online retailers.

Commercially Published Works

Compiled by Chris Gamble

Apollo: The Epic Journey to the Moon, 1963–1972, by David West Reynolds (Zenith Press, May 2013). Featuring a wealth of rare photographs, artwork, and cutaway illustrations, the book recaptures the excitement of the United States' journey to the Moon. From the adventurous astronauts to the scientists and engineers who designed and built the state-of-the-art spacecraft, the author covers every aspect of this epic voyage. Through concise descriptions, he introduces the uninitiated to this thrilling episode in U.S. history while also providing engaging details for the space aficionado. All of the key events and personalities are presented, creating a clear picture of how humans got to the Moon and what happened along the way. The detailed and meticulously labeled diagrams and maps give the reader

an in-depth understanding of the technology that carried the astronauts to the Moon and what they accomplished while they were there. Note: This appears to be a reprint from an earlier edition published in 2002 by Houghton Mifflin Harcourt.

The Astronaut Wives Club: A True Story, by Lily Koppel (Grand Central Publishing, June 2013). As America's Mercury Seven astronauts were launched on death-defying missions, television cameras focused on the brave smiles of their young wives. Overnight, these women were transformed from military spouses into American royalty. They had tea with Jackie Kennedy, appeared on the cover of *Life* magazine, and quickly grew into fashion icons. They formed the Astronaut Wives Club, meeting regularly to provide support and friendship. Many became next-door neighbors and helped to raise each other's children by day while going to glamorous parties at night as the country raced to land a man on the Moon. As their celebrity rose—and as divorce and tragic death began to touch their lives—they continued to rally together, and the wives have now been friends for more than 50 years. This book tells the real story of the women who stood beside some of the biggest heroes in American history.

China in Space: The Great Leap Forward, by Brian Harvey (Springer-Praxis, March 2013). This book gives an informed, up-to-date commentary on all aspects of the Chinese space program, including its history, its development, its technology, its missions, and the personalities involved. It lists all the Chinese launches, missions, and terminology, going behind the press releases to draw on hitherto unused scientific papers and sources. It is a unique, forward-looking account of the Chinese space program, covering its full range of missions: crewed, communications, scientific, military, technology demonstration, and lunar.

History of Rocketry and Astronautics, vol. 39, edited by John Harlow, American Astronautical Society (AAS) History Series, vol. 39, International Academy of Astronautics (IAA) History Symposia, vol. 28 (AAS/Univelt, Inc., March 2013). These are the proceedings of the 42nd History Symposium of the International Academy of Astronautics, Glasgow, United Kingdom, 2008.

Human Spaceflight and Exploration, edited by Carol Norberg (Springer-Praxis, May 2013). The book presents a unique overview of international activities in human spaceflight and exploration, covering the technical and political decision-making processes involved in projects since 1970. Among the topics covered in this book are a historical overview of human spaceflight, the challenges that the space environment poses on space missions, spacesuit designs and their future development, the selection and training of astronauts, the success of the Space Shuttle Program in relation to the experiences of European astronaut Gerhard Thiele's personal account of his time aboard the Shuttle during a mission to map Earth, and the design of life-support systems and future technologies.

Iran's Ballistic Missile and Space Launch Programs: Elements and Considerations, edited by Steven Wietman (Nova Science Publishers, Inc., May 2013). Why does Iranian acquisition of ballistic missiles or Iran's pursuit of a space launch capability

matter, especially to Congress? For decades, most in Congress have viewed Iran with concern because of its nuclear program and its support of anti–United States and anti-Israel militant movements in the region. This book examines the current and prospective Iranian capabilities that challenge U.S. national security interests, with a focus on its ballistic missile and space launch programs.

Major Projects at NASA: Select Assessments, edited by Eloy D'aramitz (Nova Science Publishers, Inc., May 2013). This book provides a snapshot of how NASA is planning and executing its major acquisitions—an area that has been on the Government Accountability Office's (GAO's) high-risk list since 1990. Over the past four years, a range of projects such as robotic probes designed to explore the Martian surface and telescopes intended to explore the universe have been reviewed. NASA has launched many of the projects, and most of the projects are returning science results as intended.

Manned Spaceflight Log II—2006–2012, by David J. Shayler and Michael Shayler (Springer-Praxis, April 2013). This new book supplements the *Praxis Manned Spaceflight Log 1961–2005*, published in 2007. It details the missions up to the summer of 2012, which completed the building of the International Space Station, serviced the Hubble Space Telescope for the last time, retired the Shuttle from service, and saw the first Chinese spacewalk. The book also offers a review of the next steps in human spaceflight, the birth of commercial operations, and plans for the next 20 years.

Mars: Evolution, Geology and Exploration, edited by Alberto G. Fairen (Nova Science Publishers, Inc., June 2013). This book's main themes focus on the environmental evolution of Mars and the exploration of the planet. Particular emphasis is given to the understanding of Mars as a "cold" planet throughout its entire geological evolution, starting as a "wet" world where liquid water was abundant on the surface, despite the low temperatures, and its sequential transition into a "dry" planet as temperatures turned even colder. The evolution of the environmental conditions is regarded as a determinant for the emergence and maintenance of life.

Mission to Mars: My Vision for Space Exploration, by Buzz Aldrin and Leonard David (National Geographic, May 2013). In this book, Buzz Aldrin sees humans on Mars in the 2030s and boldly advocates continuing exploration of our solar system at a time when America stands at a critical crossroads in its space program. He outlines past triumphs, analyzes recent setbacks, and cheers us on to greater accomplishments, with a message that will ignite a new wave of support and participation across the country for a renewed and ambitious space program.

Moon Bound: Choosing and Preparing NASA's Lunar Astronauts, by Colin Burgess (Springer-Praxis, March 2013). Often lost in the shadow of the first group of astronauts for the Mercury missions, the second and third groups of astronauts selected for the space program included the leading figures for NASA's activities for the following two decades. This book complements the author's recently published work, *Selecting the Mercury Seven* (2011), extending the story of the men who helped

to launch human spaceflight and broaden the American space program. Sixteen astronauts from both groups traveled to the Moon in Project Apollo, with several actually walking on the Moon, one of them being Neil Armstrong.

NASA Mars Rovers Manual: 1997–2013, by David Baker (Haynes Publishing, June 2013). This manual covers the development, design, and engineering of three generations of Mars rovers: Sojourner, which landed in 1997, was the size of a microwave; Spirit and Opportunity, each the size of a shopping trolley, followed in 2004; and Curiosity, the size of a compact car, landed in 2012. The book describes how these machines work, as well as what they have found and what scientists hope they can discover, and looks forward to the possibility that humans may yet set foot on the Red Planet.

New Mexico Space Trail, by Joseph T. Page II (Arcadia Publishing, May 2013). In the southwestern United States, the skies above New Mexico have provided an amazing stargazing experience for millennia. This book catalogs sites within the state that have inspired humankind to reach for the stars. The Space Trail includes various archaeo-astronomy locations, such as Chaco Canyon, which Native Americans used to predict agricultural schedules according to the Sun's position during the solstice. Rocket development in Roswell, missile launches in the Tularosa Basin, astronomy efforts around the state, and commercial spaceflights are just a few of the stops along the trail.

A Scenario for Interstellar Exploration and Its Financing, by Giovanni F. Bignami and Andrea Sommariva (Springer, April 2013). This book develops a credible scenario for interstellar exploration and colonization by examining the present situation and prospects for interstellar exploration technologies, the search for habitable planets, the motivations for space travel and colonization, and the financial mechanisms required to fund such enterprises. The final section of the book analyzes the uncertainties surrounding the presented scenario. The purpose of building a scenario is not only to pinpoint future events but also to highlight the uncertainties that may propel the future in different directions.

Something New Under the Sun: Satellites and the Beginning of the Space Age, by Helen Gavaghan (Springer, April 2013; soft-cover reprint of the original 1998 edition). In this book, the first history of artificial satellites and their uses, the author shows how the idea of putting an object in orbit around Earth changed from science fiction to indispensable reality. Focusing on three major areas of development—navigational satellites, communications, and weather observation and forecasting—the author tells the remarkable inside story of how scientists, often laboring under strict secrecy, made the extraordinary scientific and technological discoveries needed to make these miracles happen.

The Soyuz Launch Vehicle: The Two Lives of an Engineering Triumph, by Christian Lardier and Stefan Barensky (Springer-Praxis, March 2013). This book provides a description of the two lives of the Soyuz launch vehicle, first in the Soviet Union/Russia and then in French Guiana, South America. Built as the world's

first intercontinental missile, it took the first man into space in April 1961 before becoming the workhorse of Russian spaceflight, launching satellites, interplanetary probes, every cosmonaut from Gagarin onwards, and now the multinational crews of the International Space Station. The second part of the book tells the contemporary life of this rocket by addressing the sensitive issue of the strategic choices that led to the establishment of Soyuz in French Guiana and describing the role of a few visionaries in Russia and in Europe who decided to leave their respective isolation behind to bring the Soyuz and Ariane launch vehicles together.

Space Debris and Other Threats from Outer Space, by Joseph N. Pelton (Springer, March 2013). The mounting problem of space debris in low-Earth orbit and its threat to the operation of application satellites has been increasingly recognized as space activities increase. This book discusses the technical studies being developed for active removal processes and other ways to mitigate the problems of space debris, particularly in low-Earth orbit.

Space Robotics Supporting Exploration Missions: Vision, Force Control and Coordination Strategies, edited by Enrica Zereik (Nova Science Publishers, Inc., May 2013). In recent years, interest in space activities has continued to grow, and there are future space exploration plans that include human missions to the Moon and Mars. The return to the Moon will rely on a large robotic presence to support exploration and, later, to assist the building of the lunar base. These plans will require the availability of intelligent, interactive, and cooperative robotic systems since, on space missions, astronaut time is valuable and very scarce. Given these possibilities, there is a need to develop skills, capabilities, and operational experience for working in space and on the surface of the Moon (and eventually Mars) with machines and people in preparation for further exploration. To this aim, this book examines the future vision, force control, and coordination strategies of space robotics supporting exploration missions.

Space: The Ultimate Frontier, by Marcello D'Angelo (White Star Publishers, May 2013). This book takes the reader on a fantastic voyage through the universe into the mysteries of Mars, Venus, and Jupiter; on to black holes and explosions of gamma rays; and out to exoplanets light-years away. This voyage into the interstellar world is based upon the incredible images collected through the years by satellites, orbital telescopes, and the International Space Station, as well as the knowledge that the most sophisticated modern probes have just begun to provide. From the first experimental launches of the 1950s to the latest pictures of Mars, this book provides a dazzling look at the world beyond.

U.S. Hypersonic Research and Development: The Rise and Fall of Dyna-Soar, 1944–1963, by Roy F. Houchin II (Routledge, May 2013; originally published in 2006). The author shows how the roots of U.S. Air Force hypersonic research and development are grounded in Army Air Force General Henry H. "Hap" Arnold's identification of the need for advanced airpower weapon systems to meet the anticipated postwar threat. The technology for a smooth transition to military spaceflight

seemed within reach when Bell Aircraft Corporation executive Walter Dornberger made an unsolicited proposal to William E. Lamar (the chief of Wright Aeronautical Development Center's New Development Office of the Bomber Aircraft Division at Wright-Patterson Air Force Base, Ohio) for a hypersonic boost-glide weapon system. Visionaries like Arnold, Dornberger, and Lamar believed a hypersonic boost-glider would represent the ultimate expression of the U.S. Air Force's doctrine by performing strategic bombardment and reconnaissance more successfully than any other type of vehicle. As this aspiration reached maturity in Dyna-Soar, the service's leadership never gave up their convictions. This book shows how the struggle to persuade the Secretary of Defense and his advisors, who did not share the Air Force's vision for a military spaceplane, illustrates the ebb and flow of an advanced technology program and its powerful legacy within American society.

Who Was Sally Ride?, by Megan Stine (Grosset & Dunlap, May 2013). This children's book is about Sally Ride, who in 1978, as a Ph.D. candidate at Stanford University, responded to a newspaper ad to join the U.S. astronaut program. She was accepted and became the first female American astronaut to fly in space. Among her other accomplishments, she was an astrophysicist who helped develop a robotic arm for the Space Shuttle; later, through Sally Ride Science, she worked to make science cool and accessible for girls. Sally Ride, who died on 23 July 2012, will continue to inspire young children.

The X-15 Rocket Plane: Flying the First Wings into Space, by Michelle L. Evans (University of Nebraska Press, June 2013). This book tells the enthralling yet little-known story of the hypersonic X-15, the winged rocket ship that opened the way into human-controlled spaceflight. Drawing on interviews with those who were there, the author captures the drama and excitement of, yes, rocket science: how to handle the heat generated at speeds up to Mach 7, how to make a rocket propulsion system that could throttle, and how to safely reenter the atmosphere from space and make a precision landing. This book puts a human face on the feats of science and engineering that went into the X-15 program, many of them critical to the development of the Space Shuttle. And, finally, it introduces us to the largely unsung pilots of the X-15.

Yearbook on Space Policy 2010/2011: The Look Forward, edited by Peter Hulsroj, Spyros Pagkratis, and Blandina Baranes (Springer, April 2013). The *Yearbook on Space Policy* is a reference publication that analyzes space policy developments. It presents issues and trends in space policy and the space sector as a whole. Its scope is global and its perspective European. The yearbook also links space policy with other policy areas. It highlights specific events and issues and provides useful insights, data, and information on space activities.

The History Program Office gives sincere thanks to volunteer Chris Gamble, who compiles this section for us every quarter. Please note that the descriptions have been derived by Chris from promotional material and do not represent an endorsement by NASA.

Upcoming Meetings

The 64th International Astronautical Congress will be held **23–27 September 2013** in Beijing, China. Visit *http://www.iac2013.org/* for details.

The U.S. Naval Institute and U.S. Naval Academy will host the "Past, Present, and Future of Human Space Flight" conference **3 October 2013** in Annapolis, Maryland. Visit *http://www.usni.org/events/2013-us-naval-history-conference* for details.

The Society for Social Studies of Science will hold its annual meeting **9–12 October 2013** in San Diego, California. Visit *http://www.4sonline.org/meeting* for details.

The annual meeting of the Oral History Association will be held **9–13 October 2013** in Oklahoma City, Oklahoma. Visit *http://www.oralhistory.org/annual-meeting/* for details.

The Society for the History of Technology will hold its annual meeting **10–13 October 2013** in Portland, Maine. Visit *http://www.historyoftechnology.org/annual_meeting.html* for details.

The History of Science Society will hold its annual meeting **21–24 November 2013** in Boston, Massachusetts. Visit *http://www.hssonline.org/Meeting/* for details.

The 46th fall meeting of the American Geophysical Union will be held **9–13 December 2013** in San Francisco, California. Visit *http://fallmeeting.agu.org/2013/* for details.

The annual meeting of the American Historical Association will be held **2–5 January 2014** in Washington, DC. Visit *http://www.historians.org/annual/next.htm* for details.

The 223rd meeting of the American Astronomical Society will be held **5–9 January 2014** in National Harbor, Maryland. Visit *http://aas.org/meetings* for details.

The American Institute of Aeronautics and Astronautics' SciTech 2014 will be held **13–17 January 2014** in National Harbor, Maryland. Visit *http://www.aiaa.org/scitech2014/* for details.

The midwinter meeting of the American Library Association will be held **24–28 January 2014** in Philadelphia, Pennsylvania. Visit *http://alamw14.ala.org* for more details.

The 19th Annual Space Exploration Educators Conference will take place on **6–8 February 2014** at the Space Center Houston in Houston, Texas. Visit *http://spacecenter.org/education-programs/teacher-programs/teachers-seec/* for more details.

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Do you have more questions about NASA history in general? Please check out our NASA History Program Office Home Page at *http://history.nasa.gov* on the Web. For information about doing research in the NASA History Program Office, 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 your comments, as well as any changes to your mailing address or requests to stop receiving *News and Notes* in the mail, to Giny Cheong, newsletter editor, at *giny.cheong@nasa.gov.*

NASA Headquarters History Program Office Staff Contact Information:

William Barry Chief Historian	*bill.barry@nasa.gov* 202-358-0383
Nadine Andreassen Program Support Specialist	*nadine.j.andreassen@nasa.gov* 202-358-0087
Colin Fries Archivist	*cfries@mail.hq.nasa.gov* 202-358-0388
Stephen Garber Historian	*stephen.j.garber@nasa.gov* 202-358-0385
John Hargenrader Archivist	*jhargenr@mail.hq.nasa.gov* 202-358-0387
Jane Odom Chief Archivist	*jane.h.odom@nasa.gov* 202-358-0386
Yvette Smith Editor	*yvette.smith-1@nasa.gov* 202-358-5196
Elizabeth Suckow Archivist	*elizabeth.suckow-1@nasa.gov* 202-358-0375
Maria Seidel Intern	*maria.c.seidel@nasa.gov* 202-358-4495
Joey Vars Intern	*joseph.k.vars@nasa.gov* 202-358-0893

Created and produced by the following:
Giny Cheong, Newsletter Editor
Lisa Jirousek, Editor, NASA Headquarters Communications Support Services Center (CSSC)
Janine Wise, Publication Specialist/Graphic Designer, NASA Headquarters CSSC
Tun Hla, Printing Specialist, NASA Headquarters CSSC
Trenita Williams, Mail Coordinator, NASA Headquarters Mail Room
Carl Paul, Distribution, NASA Headquarters CSSC

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National Aeronautics and Space Administration

NASA Headquarters
300 E Street SW
Washington, DC 20546

www.nasa.gov