NEWS &NOTES

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FROM THE CHIEF HISTORIAN

Sometimes I wonder if people who pick up this newsletter get an inflated impression of the NASA History Program. The newsletter has a very professional look and feel, but a considerable part of what you see from the History Program is a labor of love from dedicated volunteers. Typically, most of the articles in this newsletter are written by NASA employees or contractors as an additional duty, or by unpaid enthusiasts who offer us their work for publication. Our lead story this quarter is a double-dip case of volunteer writing. We like to think that the rewards of being a NASA History intern are rich, but I do have to admit that they don't involve money. So the article by summer 2015 interns Melissa Joskow and Warren Dennis is by a pair of volunteers, about volunteering. Their enthusiasm, both in print and in person, has been infectious. I think you will see why we enjoyed their all-too-short time with us.

If you have an interesting story about National Advisory Committee for Aeronautics (NACA) or NASA history, we'd love to hear from you

continued on next page

SPACE JAM: INTERNING WITH THE NASA HISTORY PROGRAM OFFICE

By Melissa Joskow, with Warren Dennis

My fellow intern, Warren, and I come from pretty different backgrounds. He is a rising senior at Colgate University, where he studies history and astrophysics. I am a rising sophomore at Wesleyan University, and though I am undeclared, I am considering a double major in visual art and astronomy. Our common passion for space exploration fueled our search for internships, and we were both incredibly excited for this opportunity with the NASA History Program Office. However, I wasn't entirely sure what to expect. This was my first internship, and I assumed that I would be spending my days getting coffee and making copies. However, this was decidedly not the case. Every day, we were doing extremely substantive and rewarding work, and both of us have thoroughly enjoyed our summer working for NASA.

This internship has given me a new appreciation for research and the importance of outreach, particularly in the realm of social media. On the NASA History social media pages, every tweet, Facebook post, and Flickr caption had to be extensively researched. Dates, times, and facts had to be checked by multiple reliable sources to make sure everything we posted was historically accurate. And

continued on page 3

IN THIS ISSUE:

NASA HISTORY PROGRAM OFFICE

OFFICE OF COMMUNICATIONS

From the Chief Historian (continued)

too. Typical articles run in the 2,000-word range (about five pages), but we also feature shorter pieces and have occasionally run much longer articles by dividing them into parts. Why not share your interest with the rest of us who share your taste for aerospace history in all of its variety? I'd particularly invite those of you with an interest in Project Gemini to write for our end-of-year issue this year. For the last several years, we've devoted the December newsletter to a theme. Last year was, of course, the NACA centennial. The years 2015 and 2016 mark the 50th anniversary of one of the most amazing, and least known, of our human spaceflight programs. Gemini was the critical bridge from the early days of Mercury to the success of the Apollo program. Marked by both triumph and tragedy, Project Gemini was executed at a furious pace—10 flights in less than two years—yet it is overshadowed by the Apollo program. For our annual theme issue this year, we'll be focusing the spotlight on Gemini. So, if you have something interesting to say about this important program, we invite you to put fingers to keyboard and send us your best. Inputs are due in early October, so don't delay.

"FOR OUR ANNUAL THEME ISSUE THIS YEAR, WE'LL BE FOCUSING THE SPOTLIGHT ON GEMINI. SO, IF YOU HAVE SOMETHING INTERESTING TO SAY ABOUT THIS IMPORTANT PROGRAM, WE INVITE YOU TO PUT FINGERS TO KEYBOARD AND SEND US YOUR BEST."

Also often overlooked are the historians and archivists who work at the various NASA Centers. You get a glimpse of what they do in the "News from Headquarters and the Centers" section of this newsletter. I'm constantly inspired by their creativity, devotion, and hard work. Every year, the History Program Office (the handful of us here at Headquarters) presents the Annual NASA History Award to a civil servant or contractor who has excelled in the promotion of NASA history inside and outside the Agency. The winner gets a modest plaque and has his or her name inscribed on the master plaque that is hanging prominently in the Headquarters Reference Collection area for all of our visitors and guest researchers to see. We announced this year's winner at our quarterly teleconference in July, and I have to say that making the choice among an impressive crop of nominees this year was not easy. In the end, we took the unusual step of naming cowinners. The awards this year went to Glenn Bugos of Ames Research Center and Mike Wright from Marshall Space Flight Center. Glenn's productivity and energy are legendary, and, more amazingly, he does it all on a less-than-full-time schedule. With all of the changes happening at Ames in recent years, the workload has been intense, but Glenn still manages to keep history alive at his Center. Mike has been the historian at Marshall since 1986. You wouldn't know it from the strength of the history program there now, but the Marshall history effort was wiped out at the end of the Apollo program. Mike's 30 years of rebuilding from scratch leave a tremendous legacy for all of us. Next time you have an opportunity to talk with Glenn or Mike, be sure to say congratulations—and thanks.

In the meantime, I wish you Godspeed,

William P. Barry
Chief Historian

Space Jam: Interning with the NASA History Program Office (continued)

Summer 2015 interns Melissa Joskow and Warren Dennis meet Apollo 11 astronaut Buzz Aldrin.

even when everything was accurate, it could sometimes be difficult to convey complicated topics in 140 characters or fewer. While that limit was sometimes frustrating, it forced us to be creative with our posts, and we discovered multiple tricks to keep things short while still intriguing our followers. Facebook posts and Flickr captions had a little more leeway, but even then, to keep our readers engaged and interested, we never wanted the caption to be too long. We quickly learned how to make our writing more concise and to the point, which not only helped us compose these social media posts, but also improved our writing skills in general.

The internship, however, was not only about tweets. We had a whole series of assignments for the summer, including managing updates on the Flickr page and adding to the "Defining Events" page on the NASA History Web site. Additionally, we wrote several articles for the NASA Web site about important anniversaries and figures in the history of space exploration, for example, John Glenn, Neil Armstrong, the National Advisory Committee for Aeronautics' (NACA's) first wind tunnel, and the 50 years that NASA has been exploring Mars. I had never published anything online before this internship, and while Warren had done some work with Web sites in the past, we were both ecstatic to have our work published on the NASA Web site. These features allowed for intensive research on particular events, and Warren in particular really loved enveloping himself in the material before he began to compose an article. The internship essentially became a crash course in the history of NASA and the NACA. Warren has been interested in the history of science for some time, and this internship reinforced his love of space and humanity's exploration of it. As for me, I had a broad understanding of the history of the space program before I began this internship. Now, though I am still by no means an expert, I know much more about the Agency's many accomplishments, and I intend to continue learning as much as possible about space history.

We were also fortunate enough to participate in several talks and events that furthered our knowledge of aeronautics and astronautics. One such event was the Innovations in Flight Day Social at the Air and Space Museum's Udvar-Hazy Center, where we watched planes of all types fly into Dulles and taxi onto the Air and Space Museum's runway. We learned an incredible amount about airplanes and aviation from the many experts who attended the social. Other events included attending presentations from NASA's Chief Scientist Ellen Stofan and astronauts Reid Wiseman and Butch Wilmore. Warren even got to wear an extravehicular activity (EVA) suit to teach kids about space! But perhaps the most exciting event was working the New Horizons Pluto Flyby Event at Johns Hopkins's Applied Physics Laboratory. We had spent a lot of time promoting the flyby on social media, and it was very exciting to actually play a small part in the mission's success. Neither of us will ever forget the moment New Horizons confirmed that it had survived the flyby, and we look forward to seeing what future NASA History interns write about this historic achievement.

But maybe the best aspect of our internship was seeing the positive responses people had to our work on social media and at outreach events. We were always

Intern Warren Dennis wears a replica spacesuit as astronaut Barry "Butch" Wilmore describes its functions to students attending the Joint Base Anacostia-Bolling Summer Camp on 24 June 2015. (Photo credit: NASA/Aubrey Gemignani)

excited to see the public express their support for NASA and for its many historic accomplishments, and we were encouraged by the dialogues our work facilitated among the scientific and nonscientific communities, both in the comments on our posts and at the events that NASA hosted. NASA really is a ubiquitous agency that appeals to a wide range of people, and through tools like social media, we helped to foster a community that shared knowledge with one another and learned together as a result. Disseminating information about NASA's history is essential to instilling a sense of purpose for the organization within the public; by informing people about the connection between our past accomplishments and our future goals, we give the current missions context and demonstrate the value of what NASA does.

It was incredibly fulfilling to play a small role in promoting NASA's history and facilitating discussions about the organization's past and future. Interning for the NASA History Program Office was an amazing experience, and if you're thinking about applying for this internship, we highly recommend it. Not only do you get to go to incredible events and meet fascinating people (we met eight astronauts, including Buzz Aldrin), but you also get the opportunity to completely immerse yourself in the history of NASA. It was an incredibly fun and rewarding internship, and both Warren and I cherished our time here. We could not have found a better way to spend our summer.

NEWS FROM HEADQUARTERS AND THE CENTERS

NASA HEADQUARTERS

Washington, DC

History Program Office

By Bill Barry

At the end of May (as the previous newsletter was going to print), the History Program held a program review at Stennis Space Center, Mississippi. It was wonderful to see most of the historians, archivists, and others who support the History Program all in one place for the first time since late 2011. A useful two-day meeting was made all the better by the wonderful southern hospitality of our hosts. While many people contributed to the success of the event, I want to give special thanks to Tessa Keating and Daphne Alford at Stennis, as well as our own Nadine Andreassen. They managed to make the smooth running of the event look easy and seamless, but our enjoyable meeting was actually the result of a lot of hard work. In addition to catching up with each other, the Agency-wide group made tremendous progress in working over a draft NASA Policy Directive (NPD) for the History Program. There is still much to be done to finalize the draft and push it through the concurrence process, but I was particularly pleased with the thoughtfulness with which we collectively tackled this job. I think that the seriousness of the effort will be rewarded by an NPD that will serve us well for many years to come.

Another initiative, this one from outside the History Program, is also likely to have a significant and positive effect on how we do our work. The NASA Communications Coordinating Council—the Agency's senior decision-making body for strategic direction, planning, and implementation of Agency communications programs, events, and activities—has been increasingly focused on improved planning. This has included working on strategic plans for significant communication and outreach activities a year or more in advance (rather than our seemingly typical bad habit of responding to events at the last minute).

NASA History staff from Centers across the country are shown meeting at Stennis to draft a new NPD for the History Program in May.

After wrapping up their work on the NPD, attendees tour the historic B-1/B-2 test stand at Stennis.

From a History perspective, the great news about this effort is that we have been part of the consultation process. The History Program Office was asked for a forecast of significant anniversaries from the second half of 2015 through 2016—and we were also asked for our input on what made these events important. Fortunately for us, many years of continuing hard work in producing lists of this sort made this a relatively easy assignment. To me, the big breakthrough in this new process is that there is now a systematic mechanism to raise the issue of important historic anniversaries to the attention of our senior leadership and, in the process, provide some thoughtful historical analysis. While this may not rival the invention of the wheel, it is an important bureaucratic step in making sure that those of us doing the historical work of the Agency have a voice in the discussion about what, why, and how we mark historic events.

> **THIS PAST SUMMER, WARREN DENNIS AND MELISSA JOSKOW HAVE DONE A FANTASTIC JOB OF NOT ONLY EXPANDING OUR SOCIAL MEDIA FOOTPRINT, BUT ALSO IN CRANKING OUT A PHENOMENAL NUMBER OF WEB STORIES ON VARIOUS HISTORICAL TOPICS.**

As always, we have been incredibly lucky in our selection of interns. This past summer, Warren Dennis (a senior at Colgate University) and Melissa Joskow (a sophomore at Wesleyan University) have done a fantastic job of not only expanding our social media footprint, but also cranking out a phenomenal number of Web stories on various historical topics. Their pieces on the 50th anniversary of Mariner 4, the 40th anniversary of Apollo-Soyuz, the 15th anniversary of the launch of the International Space Station (ISS) Service Module, and several others were featured on www.nasa.gov and helped to throw more historical light on the usual news stories on significant anniversaries this summer. As usual, we were very sorry to see our interns go at the end of the first week of August. By the time this reaches you, we will have our fall intern, Betsy Reimer, at work. Betsy is a business major (minoring in communications and history) at Nebraska Wesleyan, and she will be on a semester-in-Washington program this fall. She started just after Labor Day and will be with us into December.

Another new member of our team since the middle of the year is Victoria Johnson. Vicki has picked up the reins from Giny Cheong as the support contractor for the annual President's Report and this newsletter. Those of you who contribute to the newsletter or contact us about it will probably wind up communicating with the ever-friendly and efficient Vicki. If you are writing something for the newsletter, she'll be you main point of contact—so feel free to reach out to her at *victoria.johnson-1@nasa.gov*.

Historical Reference Collection (HRC)

By Jane H. Odom

In the Headquarters Archives, the staff continues to stay busy with reference requests and with the processing (arrangement and description) of collections. During the last quarter, we hosted visitors from Headquarters and Goddard as well as the National Air and Space Museum, George Washington University, Johns Hopkins University, Georgetown University, Virginia Polytechnic Institute and State University (Virginia Tech), Auburn University, the University of Idaho, Texas A&M, Syracuse, the University of California, Santa Barbara (UC Santa Barbara), Princeton, the Massachusetts Institute of Technology (MIT), History Associates, and Foresight Science and Technology.

Recently, several digital archive projects have been completed that researchers will find of interest. Nearly 50 Lori Garver speeches, dated ca. 2009–14, and 35 John Naugle speeches, from ca. 1961–85, have been published to our external site at *https://historydms.hq.nasa.gov/*. Garver was Deputy Administrator from 2009 to 2014; Naugle was the Associate Administrator for the Office of Space Science and the Agency's chief scientist before his retirement in 1981.

A review of 14 boxes on loan to us from the Federal Records Center (FRC), which contain materials on the International Space Year (ISY), is complete. The FRC boxes, with contents dating from 1987 to 1994, held congressional, White House, and NASA material on the founding of the ISY, as well as NASA and U.S. ISY committee material on the establishment and completion of various ISY projects. After an appraisal, dozens of documents were copied and added to existing subject files in the HRC, making our collection that much richer for researchers.

Jane is continuing to work closely with Goddard Space Flight Center (GSFC) and Langley Research

Center (LaRC) officials, with the former to establish a brand-new archival program at their Center and with the latter in preparation for their upcoming building (and archive) renovation.

If you are interested in visiting the HRC to conduct research, please contact us at 202-358-0384 or at *http://history.nasa.gov/contact.html* to schedule an appointment. To search our electronic documents collection, see *https://historydms.hq.nasa.gov/*.

AMES RESEARCH CENTER (ARC)

Moffett Field, California

By Glenn Bugos

Jack Boyd convened a panel discussion on the NACA legacy and how it remains strong throughout NASA today. The panel was part of the Director's Colloquium Summer Series, organized by the Ames Office of the Chief Scientist. For an audience of about 175 people, many of them interns at Ames for the summer, Jack presented an overview on the accomplishments and culture of the NACA. He was joined by Walter Vincenti and Victor Peterson. Vincenti joined Ames in June 1940. Peterson started at Ames in 1956, working in supersonic aerodynamics; he was an advocate for supercomputing and computational fluid dynamics, and he retired in 1994 as Deputy Center Director. Vic was also a leader in the NACA reunions. Glenn Bugos moderated. The discussion will be available on the NASA YouTube channel.

Jack Boyd has been busy giving presentations on the history and culture of NASA Ames, often as many as five a week, to international visitors and to the groups of interns who flock to Ames each summer. For the New Space conference in Silicon Valley in July 2015, Glenn Bugos gave a talk on the work of the NACA in commercial aviation as an analogy for commercial space exploration. The History Office was recognized with the NASA Honor Award for Group Achievement for the Ames 75th Anniversary Open House Event Champions Team.

Because of changes at Moffett Airfield, NASA Ames is actively looking for a qualified museum interested in accessioning two large and well-preserved artifacts. A module built by the European Space Agency (ESA) for the SpaceLab program has been opened for better visibility during engineering integration studies. The Kuiper Airborne Observatory (KAO), active from 1975 to 1996, was a pioneering infrared observatory built inside one of the last remaining K-141A transport aircraft. The KAO is shown here with SOFIA, its successor, in the background. (Photo credit: NASA)

Walter Vincenti (right) talks about the role of the NACA in aerospace science during a July panel discussion at Ames. He is joined by Victor Peterson (left) and Jack Boyd (center). Vincenti started at Ames on 1 June 1940 as the fourth engineer on staff. He worked in the famed Ames high-speed aerodynamics group, which pushed flight into the supersonic and hypersonic realms. In the aftermath of Sputnik, Stanford University recruited him to its newly invigorated Department of Aeronautics and Astronautics, and among his students were two future Ames Directors. In 1971, he founded the Stanford Program in Science, Technology, and Society and enjoyed a second career as a leading historian of technology. His award-winning book of case studies on aeronautical engineering, *What Engineers Know and How They Know It,* is one of the best written on the history of the NACA and on engineering epistemology. (Photo credit: NASA Ames)

Yvonne Clearwater addresses a group of artists at swissnex. (Photo credit: Myleen Hollero)

We bid farewell to Yvonne Clearwater, who retired in July following 31 years at Ames. Yvonne started as project manager and Principal Investigator on the ISS design team that produced guidelines for space human factors to improve astronaut performance and validated the effectiveness of distributed virtual teaming. In the 1990s, she pioneered NASA work in digital media, producing huge interactive digital video shows like the Mars Virtual Reality Theater. Most recently, Yvonne led the NASA New Media Innovation Team, emphasizing creativity at the intersection of art, science, and technology. She led the development of the first NASA app for the iPhone in 2009, of the "NASA on the (Flickr) Commons" site for NASA to share its most historically significant photographs, of the NASA "Participatory Exploration" initiative, of a historical image gallery for the Ames technology transfer site, and of the NASA ArtSpace Web site on creative works that inform and inspire space exploration. Though her work was constantly on the cutting edge of new media, all of it displayed an abiding love of NASA history.

We welcome Eugene Tu as Ames Center Director and Tom Edwards as Deputy Center Director. Both Eugene and Tom have spent their entire careers at Ames, starting in the mid-1980s. Eugene's contributions to Ames history have come mostly in computational fluid dynamics, supercomputing, and exploration technologies, while Tom has led our work in aeronautics and aviation operations. Both have witnessed more than three decades of our Center's 75-year history and are known to speak passionately about how the changes they have seen over time serve as a basis for the changes they expect to make.

Reference Collection

By April Gage and Danielle Lopez

The archives community welcomed its newest member, Danielle Lopez, this spring. Danielle is working in the Science Directorate's Engineering Release Center (ERC) with Miriam Freed and cross-training with April Gage part-time in the History Office. In the ERC, Danielle is digitizing biological payload hardware engineering records and creating the associated metadata. In the History Office, she is assisting with processing projects and acquisitions. Danielle holds a bachelor's degree in United States history from California State University, East Bay, and a master's degree in archives and records administration from San Jose State University's School of Information.

This spring, April also began dividing her efforts between the History Office archives, where she has been working since 2004, and the Science Directorate. Under the direction of Alison French, she is working in the Ames Life Science Data Archive and the Biological Specimen Facility. Currently, April and colleague Dorothy Leung are drafting requirements for the directorate's archival storage facilities according to federal standards and professional best practices.

A highlight in collections processing activities is the completion of the final phase of an audiovisual digitization project by April Gage, with assistance from graduate student intern Mikael Wester. They finished a thorough review of 160 digitized audio and video recordings (approximately 96 hours) and created descriptive metadata records using the new

> A HIGHLIGHT IN COLLECTIONS PROCESSING ACTIVITIES IS THE COMPLETION OF THE FINAL PHASE OF AN AUDIOVISUAL DIGITIZATION PROJECT BY APRIL GAGE, WITH ASSISTANCE FROM GRADUATE STUDENT INTERN MIKAEL WESTER.

standards-based schema that April developed. The reformatted items span multiple subjects across the Archives Reference and Pioneer Project Records collections, as well as two partially processed acquisitions of Galileo Probe project records and personal papers of Center Director G. Scott Hubbard. Of note in this year of the NACA centennial are recordings of speeches delivered at biennial inspections held at Ames Aeronautical Laboratory. Speakers include John F. Victory, Jerome C. Hunsaker, Hugh L. Dryden, Vannevar Bush, and Ames Director Smith DeFrance.

With coaching from longtime computing professionals B. Douglas Pearson, Jr., and John E. Humbert, April also completed processing and writing a multilevel finding aid for a small collection of automatic data processing (ADP) acquisition planning records. This collection provides a glimpse into ADP procurement planning activities conducted by the two Ames ADP management officers, Phillips J. "Jack" Tunnell and B. Douglas Pearson. The records reflect their research and evaluation of projected needs for various ADP capabilities, including mainframe computers; supercomputers; and increasingly sophisticated facilities, networks, and programs. Though the collection does not constitute a complete set of records of this work, it does offer insight into three decades of computing capabilities at Ames. The finding aid to this collection is posted on the History Office Web site and the Online Archive of California.

Finally, a selection of original artwork from the Artifacts Collection will be featured in an upcoming exhibition focusing on the life and work of the artist Rick Guidice. With assistance from Ames property manager Carla Snow-Broadway, the archives are preparing a loan of 11 paintings depicting space settlement designs that were developed in a 1975 summer study jointly conducted by Ames and Stanford University. The exhibit will run at the New Museum Los Gatos in Los Gatos, California (the hometown of Guidice), from 27 September 2015 through 3 January 2016.

ARMSTRONG FLIGHT RESEARCH CENTER (AFRC)

Edwards Air Force Base, California

By Christian Gelzer

The summer intern, Christy Ailman, made great progress on the Controlled Impact Demonstration (CID) manuscript. Along with the interviews with engineers that she is adding to the Center's collection of oral histories, Christy has interviewed a project pilot and remotely piloted research vehicle pilots, as well as members of the Federal Aviation Administration (FAA). Using primary material from the Center's collection, she also has begun looking at statistical data concerning crashes over the last 50 years to map patterns of risk, all while asking fundamental questions surrounding experimentation versus validation.

Christian Gelzer continues juggling two manuscripts, one on the Flight Loads Laboratory history and the other on the role the Center and Edwards Air Force Base played in the Space Shuttle Program. He also continues to perform research on two other projects that are ongoing: the Prandtl wing and the Towed Glider Air-Launch System. Additionally, he has participated in two PBS-affiliated video program shoots and one spec shoot concerning the Lunar Landing Research Vehicles.

GLENN RESEARCH CENTER (GRC)

Cleveland, Ohio

By Anne Mills

As we continue to celebrate the centennial of the NACA, the GRC History office is pleased to announce the release of two new Web sites on NACA history topics. The first is a comprehensive look at the NACA Inspections. We hope that this Web site, produced in partnership with Ames and Langley, provides a unique approach to learning about the research of the NACA through primary source materials.

The NACA Inspections were what we now might call Industry or Business Days. These meticulously planned and coordinated events were an opportunity to showcase research to the larger aeronautical community in industry, government, the military, and universities. NACA researchers gave presentations, and visitors toured test facilities. Fortunately for historians and researchers, all of these inspections were documented as thoroughly as they were planned. At the end of each event, all planning materials, correspondence, invitation lists, transcripts of presentations, and photographs of the event were collected and bound into an inspection volume. In anticipation of the NACA Centennial, these volumes have been digitized and are now being made available to researchers through this Web site.

The NACA Inspection materials serve as miniature time capsules and provide excellent insight into the state of the NACA, aeronautical research of the time, and the people who made it happen. We hope that through providing this material to a larger audience, we can help historians and researchers understand the larger impact of the NACA on aeronautics, its influence on NASA, and its role in the history of science and technology.

“THE NACA INSPECTION MATERIALS SERVE AS MINIATURE TIME CAPSULES AND PROVIDE EXCELLENT INSIGHT INTO THE STATE OF THE NACA, AERONAUTICAL RESEARCH OF THE TIME, AND THE PEOPLE WHO MADE IT HAPPEN.”

Inspection materials from Langley, Ames, and Lewis (now Glenn) Research Centers ranging from 1946 to 1973, as well as background information on the Inspections, can be found here: *http://grchistory.grc.nasa.gov/inspections*.

Additionally, through the Office of Communications and External Relations, a history of research aircraft used at Glenn Research Center between 1943 and 1958 has been made available at *http://www.nasa.gov/externalflash/NACA/*. When the Aircraft Engine Research Laboratory (now GRC) opened, its primary focus was to improve the state of aircraft engines. Aircraft at the Center were test beds for our engine research. On this site, 11 of our most interesting research aircraft are profiled, including the Martin B-26 Marauder, the Northrop P-61 Black Widow, and the F-82E Twin Mustang. Each aircraft profile includes images, specs, and a history of the research for which the plane was utilized.

JOHNSON SPACE CENTER (JSC)

Houston, Texas

By Rebecca Wright

JSC Center Director Ellen Ochoa presented a Group Achievement Award to the Center’s History Office members during a NASA Honor Awards Ceremony held this past summer in Houston. Rebecca Wright, Sandra Johnson, and Dr. Jennifer Ross-Nazzal were recognized for their efforts that provide a “unique bridge between the past and the future for America’s human spaceflight program, and for safeguarding NASA history for future generations.”

JSC History Office members were presented a Group Achievement Award during a NASA Honor Awards Ceremony held this past summer in Houston. Pictured are (left to right) Center Director Ellen Ochoa; the JSC History Office team, Rebecca Wright, Sandra Johnson, and Dr. Jennifer Ross-Nazzal; and JSC Deputy Director Kirk Shireman.

The team continues gathering oral history for NASA and recently began a project with the International Space Station Program. More than 20 individuals were interviewed to provide information that will be used for an upcoming publication from the ISS Program. The transcripts will be posted on the JSC History Portal (*http://www.jsc.nasa.gov/history*) at the conclusion of the project. Also, the JSC History Office is capturing information for the JSC Knowledge Management Office from several longtime members of the JSC workforce.

This past summer, thanks to fortunate scheduling, the team enjoyed a week of talking with various Center Directors. Responding to the oral history projects mentioned above as well as those for JSC and the NASA Headquarters History Program Office, the team had the opportunity to interview General Jefferson D. Howell, who shared his experiences as JSC Director from March 2002 through November 2005; Michael L. Coats, who discussed his seven years of leading the Center (November 2005–December 2012); and Robert Cabana, current Kennedy Space Center Director (since October 2008), who has also served as Director of Stennis Space Center and as Deputy Director of JSC. Also collected during this brief time period were thoughts from Dr. Hans Mark, NASA's Deputy Administrator in the early 1980s.

The JSC History Office team continues to offer its research expertise to the Center's Historic Preservation Office for a couple of ongoing projects. These include restoring the historic Apollo Mission Operations Control Room (MOCR), designated a National Landmark in 1985, and assisting in tasks related to the historic and architectural 50-year survey and evaluation of the Center's facilities.

LANGLEY RESEARCH CENTER (LARC)

Hampton, Virginia

By Gail Langevin

On 8 May, Langley Research Center was recognized by the American Helicopter Society (AHS) International as a Vertical Flight Heritage Site. NASA Administrator Charles Bolden and Associate Administrator for Aeronautics Jaiwon Shin visited the Center for the presentation of a bronze plaque by Mike Hirschberg, Executive Director of AHS International. The Honorable Scott Rigell, Congressman from Virginia's second district, provided video remarks, and the Honorable George Wallace, mayor of Hampton, offered his congratulations at the ceremony.

Investigations into helicopter flight began during the NACA era. In 1920, NACA Chief Physicist Edward Warner published NACA Technical Note 4, "The Problem of the Helicopter," detailing the then-challenges to safe helicopter flight and noting that most of the technical papers on helicopters of the time were in languages other than English. In 1929, aviation pioneer Harold Pitcairn demonstrated his Cierva C-8 autogiro by flying from Philadelphia to Langley Field. The Cierva C-8 was on display at the fourth NACA Conference. In the 1930s, Langley research pilots flew a Pitcairn PCA-2 autogiro. Data from the flights resulted in some of the first substantive reports on rotorcraft flight.

To complement the flight tests, from the 1930s onward, many Langley wind tunnels investigated various aspects of rotorcraft flight, including flight dynamics, handling qualities, aeroelasticity, and vibratory loads. What is now known as the 14- by 22-Foot Subsonic Tunnel began as a research facility for vertical takeoff and landing concepts in the 1970s. The tunnel continues to contribute to rotorcraft flight knowledge today.

At the end of the Apollo era, the Langley Lunar Landing Facility was converted into the Impact Dynamics Research Facility. Since its conversion to impact studies, this facility is unique in providing controlled, angled drop tests. Full-sized production rotorcraft are suspended from cables and released to impact the ground to improve our understanding of how structural damage occurs and to help determine improvements for crash survivability. A concept for severing cables before the rotors contacted them was also tested at the Impact Dynamics Facility. For this series of tests, a helicopter was suspended and then swung in an arc without contacting the ground into a taut cable to test the cutting ability of the mechanism. Now known at the Landing Impact Research (LandIR) Facility, it was used for two tests of a transport rotorcraft airframe in 2013 and 2014. Last summer, LandIR was used to demonstrate a 10-propeller free-flying aircraft concept with 10-foot wings that rotate for hover or forward flight. The aircraft, known as the GL-10, is advancing our understanding of hybrid diesel/electric engines. During its first few flights, it flew tethered to the LandIR.

A Sikorsky YR-4 is shown in the NACA Langley Full-Scale Tunnel in 1944.

Reference Collection

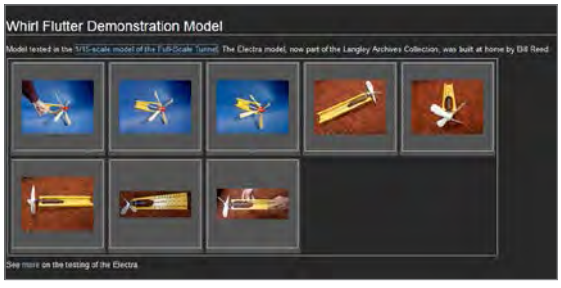
By Mary Gainer Hurst

The Langley Research Center archives collection is taking on a dramatic new look. As we prepare for the demolition of the building currently holding the collection, we are making some decisions that affect the collection and how it is accessed. The overall goal is to completely inventory the collection, move to a digital repository, and reduce the physical holdings to material with historic significance.

The last inventory was conducted in 1999, providing an overview of the holdings. Since that time, more than 700 linear feet of donations had been received but not appraised. Since starting the current task this year, we have received and appraised another 68 linear feet of donations.

Currently, we are implementing two major changes. Langley has been the repository for the Agency's Research Authorizations (RAs) for many years. Those 273 linear feet of historically valuable materials are being preliminarily inventoried and will be boxed and shipped to the NASA Historical Reference Collection to be processed and ultimately made available for research use.

The other major activity is scanning reference materials and organizing them on our Web site (*http://crgis.ndc.nasa.gov/historic/larc*). This searchable database will provide images of most of the collection and includes documents, photos, and the models and artifacts that will be maintained as part of the archives collection. Searches will also yield items that are maintained in the physical collection, whether they are also available electronically or not. An interesting example of a document that was not scanned is an advertising brochure for Carey Stone, a product that was used as the exterior facing for several buildings including the Full-Scale Tunnel.



This image shows an example of the entry for the Whirl Flutter Model, part of the Langley Archives Collection.

Although demolishing NASA buildings is an emotionally charged action, at Langley there have been positive outcomes in terms of salvage and historic preservation. Moving the Langley Archives Collection to digital format is yet another positive step resulting from the loss of another of our historic buildings.

> "ALTHOUGH DEMOLISHING NASA BUILDINGS IS AN EMOTIONALLY CHARGED ACTION, AT LANGLEY THERE HAVE BEEN POSITIVE OUTCOMES IN TERMS OF SALVAGE AND HISTORIC PRESERVATION."

MARSHALL SPACE FLIGHT CENTER (MSFC)

Huntsville, Alabama

By Michael Wright

This year marks Marshall's 55th anniversary. The Center opened on 1 July 1960 and was dedicated by President Eisenhower on 8 September 1960. That's 55 years of space accomplishments—Mercury Redstone, Saturn, Skylab, the Space Shuttle, the Space Station, and more. The anniversary also represents 55 years of information gathering and sharing among thousands of Marshall's managers, employees, contractors, and others. It reminds us of the millions of hours that

Marshall's employees have contributed to the space program and to solving thousands of the technical challenges assigned to the Center.

Mike Wright, the Marshall historian, and Brian Odom, the Marshall archivist, recently traveled to the National Archives Southeastern District in Morrow, Georgia. The boxes and boxes of historical records from Marshall were impressive to see. Mike and Brian concentrated on the speeches that Wernher von Braun presented during his 10 years as the Director of Marshall. They used flatbed scanners to copy many of the speeches and to return digital copies to Huntsville.

The number of speeches that they were able to review was obviously limited by time. The extent and scope of the Marshall archives in Georgia is, of course, massive, with collections containing von Braun's foreign correspondence, Director's files, and files from the Saturn Program Manager's office from the years 1961 to 1968. Seeing the thousands of boxes is a testament that well reflects 55 years of Marshall's history.

Before Mike and Brian returned to Huntsville, the archivists in Georgia provided them with a guide to the Marshall collections on file there. Anyone who is interested in Marshall's history and would like a complete copy of the guide may contact Mike (256-544-6849) or Brian (256-544-5670). Meanwhile, information related to Marshall records at the National Archives at Morrow, Georgia, can be found at *http://www.archives.gov/atlanta/*.

Reference Collection

By Brian Odom

The Marshall History Archive continues in the arrangement and description of both the hard-copy document and digital-format collections. To mark Marshall's 55th anniversary, Center archivist Brian Odom and History public affairs officer Tracy McMahan participated in the 20 June NASA Day on the Square event in downtown Huntsville, Alabama. The history portion of the exhibit included a graphic timeline of the Center's history as well as several historical photos of launch vehicles, projects, and facilities. The event also provided the office with the opportunity to gauge the interest of local retirees and other attendees for the creation of a community archive centering on Huntsville's experience in the history of space exploration.

The office continues to take in new collections related to the history of the Center. A recent addition to the archive is a collection of documentation, photographs, and log books donated by Lois Brown on behalf of her now-deceased father, Homer C. Powers. Powers began employment at the Army's Redstone Arsenal in Huntsville, Alabama. With the creation of NASA's Marshall Space Flight Center in 1960, Powers took a position as electrical engineer in Marshall's Astrionics Laboratory Gyro and Stabilizer Division and worked in this capacity throughout the Saturn program. At the close of the program, Powers went on to work closely with Stratoscope II and III. The Homer C. Powers Collection spans the period 1951–76. The largest portion of these papers concerns materials related to Stratoscope II and III; land navigation system testing in Flagstaff, Arizona (1966–68); and issues of *Electrical Engineering* (1951–54). Significant items in the collection include log books from the Stratoscope II and III programs and one log book covering the testing of Surface Vehicle Navigation System gyro compasses from Aviation Electric Limited. The collection also includes nine films of sled testing from the period 1963–65 and photographs of Supersonic Naval Ordnance Research Track testing at China Lake and Hill Air Force Base.

The archivist also was asked to appraise and select 16-millimeter and 35-millimeter original historical films for digitization. The over 100 hours of film selected for the project included footage of the visit of President Eisenhower to Marshall in October 1960, the celebration of Alan Shepard's historic Mercury flight, and hours of briefings by Marshall Center Directors.

In this photo taken at Holloman Air Force Base in New Mexico on 12 May 1964, Homer Powers is fourth from the right.

The archivist also assisted with several research projects, one of which included searching the photograph collection for images of Apollo-era system-level testing of the Saturn IV Stage at Douglas Aircraft's Sacramento Test Facility. The search turned up several very interesting photographs of the Saturn IV stage testing at the site. Other noteworthy research included Walter Cronkite's visit to Marshall during the Skylab program, testing of the Local Scientific Survey Module, and the critical design review for the Space Shuttle Program.

If anyone is interested in Marshall's history or has a question about the Marshall History Archive, please contact the archivist at 256-544-5670 or online at *http://history.msfc.nasa.gov/*.

STENNIS SPACE CENTER (SSC)

Stennis Space Center, Mississippi

By Daphne Alford

A preliminary reorganization of more than 70 unprocessed boxes was recently performed in the History Office of the John C. Stennis Space Center. Contents of the boxes included dated materials from as far back as the early 1950s, 16-millimeter films produced in the 1960s, and files of Dr. Wernher von Braun.

Speeches and press releases were among the 22 von Braun files. Shared below is one of the most interesting items in his collection—a copy of an undated Q&A titled "Dr. von Braun Discusses the Next Decade in Space."

Q. The first decade in space has produced manned landings on the moon, operational weather satellites, communications satellites, a tremendous quantity of scientific data. What do you predict the second decade in space will produce in manned and unmanned space flight?

A. The duality of our space program—the distinction between manned and unmanned space flight that was the trademark of the first decade—will probably disappear to a very great extent in the next decade. Now that we know that man can fly through space, that he can survive the space environment, that he can do something useful in space, it becomes important to put man to use as an explorer, a researcher, an operator, a maintainer of scientific equipment.

Q. What types of projects do you think we will be doing by the late 1970s to 1980s?

A. I consider the shuttle the most exciting program that NASA is involved in at the moment. I think it will drastically change the mode in which space flight will be conducted. In the first place, the shuttle can reduce transportation costs to orbit. At the moment, it still costs anywhere between $500 and $1,000 to put a pound of payload into a low earth orbit. I think there's reason to believe that this cost can be reduced to something like $50 to $100 per pound in orbit.

But this is not the only significant cost saving that the shuttle will bring about. Equally important will be the fact that it will enable us to get more out of our payloads for the dollar. Let me give you an example in the field of astronomical research.

The present mode of conducting astronomical research from outer space is to build a scientific spacecraft for a very long lifetime and give it a capability to accept certain instructions from the ground. Of course, this basic spacecraft cannot collect data beyond what it was originally designed for. But, with a shuttle that can fly up into orbit like an airplane, and that can return with that same payload that it takes up, you can conduct astronomical research from orbit much as NASA presently does from high altitude airplanes.

Q. Do you expect that we will have big multi-manned space stations in orbit toward the end of the 1970s?

A. Yes, I think so. On the other hand, I believe since the shuttle will also be a very effective carrier for space science, in the sense of an oceanographic research ship[,] that the space station will more and more concentrate on those kinds of space science and applications missions that require longer duration. In addition, the shuttle will play a major role as a support facility for science operations.

For example, you may have a telescope in orbit that requires repeated reloading of the cameras, or taking out of videotapes. You would dock that telescope onto a space station, do your work from the space station, and then release the telescope again for independent operation.

So the space station will become more and more a combination hotel, restaurant, kitchen, medical dispensary, spare-part supply station—the railroad station for the shuttles. It will be a computer center. It will be a communications center insofar as it will provide the basic utilities that all space science applications operations will have in common.

Q. How large do you envision U.S. space stations will be? And how long do you think men will stay in such labs without a crew change?

A. Well, at the moment NASA is firmly engaged in developing a first generation space station. We call it the Skylab project. The Skylab will never have more than three men up there because each crew goes up and returns before the next crew comes up in its own spacecraft. Skylab has its limitations because all its subsystems for life support and for electrical power generation support are spun off the Apollo program. We have just stretched out its utility a few months by bringing more consumables up. Nevertheless, there will be a lot of science conducted even from Skylab.

The second generation of space station, envisioned for the latter part of the 1970s, will be a modularized unit, designed for long stays—kind of a permanent space station. Each module will accommodate 12 men and these modules can be stuck together. In a way, it's an open-ended thing. It depends on how many modules you put together. But the most important thing about this second generation space station is that all its life support systems will be built for long duration.

> "SO THE SPACE STATION WILL BECOME MORE AND MORE A COMBINATION HOTEL, RESTAURANT, KITCHEN, MEDICAL DISPENSARY, SPARE-PART SUPPLY STATION—THE RAILROAD STATION FOR THE SHUTTLES."

Q. What activities will we conduct on the moon in the next decade?

A. By the end of the next decade we are likely to have several small lunar base camps, from which surface exploratory operations are conducted with the help of roving vehicles pretty much like in Antarctica.

Q. Do you expect that there will be any manned flights to planets other than the moon in this period?

A. I don't think we'll have a man on Mars by 1980, mainly because there are so many interesting things to do near earth.

Q. You specifically said a manned Mars landing. How about flights to the vicinity of Mars?

A. It takes quite a while to get close to Mar[s] for even a few hours. And I don't think that man could find out in a short fly-by a lot more than automatic instrumentation could.

The men would probably be busy taking pictures all the time in order to preserve the records. And, if that's all they're doing, then we might as well take the pictures automatically. I think men on Mars, just like men on the moon, will really become very important once they're down there on the surface as explorers.

Q. What technological developments are needed for the second decade in space?

A. Well, the shuttle, of course, requires many advances in the field of aerodynamics, in the design of reusable vehicles that can fly to orbit

100 times and return and go through the heating/pressurization cycles of the cabin 100 times without fatigue problems. It is loaded with technological challenges of this kind, none of which I think is insurmountable. But all require that a lot of homework be done before we have assurance that the thing will hang together after 100 flights. It's a pretty challenging thing. In the shuttle, we will try to utilize the next plateau of technology all the way through.

Q. What do you consider to be the most critical items, the ones that will determine the pace of the program?

A. The booster element, or first stage of the shuttle, is probably the most straightforward. It doesn't reach the very high orbital velocity that the upper stages reach. It is more forgiving with respect to overweight of the structure and under-performance of the engines. The orbiting element is the more demanding of the two.

Other than that, I would say that the shuttle probably has as many difficulties as the Apollo program had in 1961, but I don't think I could single out any one thing that will make or break it.

Q. You must be putting great stress on testing this time. Won't contractors have to guarantee that parts will operate for an extended period rather than a relatively short time?

A. Yes, I think there will be quite a bit of sample testing. For example, before you build a wing of the orbiter, you may want to build a full scale test panel of the wing, and subject this test panel through 100 cycles of the typical reentry environment to make sure that it holds together. There will be lots of that.

Q. Isn't there a requirement on the contractors that the shuttle must be ready to refly within two weeks? Are you stipulating how much replacement of parts, if any, they can make?

A. The desire to reduce the tum-around time to something like two weeks reflects pretty clearly that if you have too much rebuilding to do, you haven't gotten a viable package. It's in the nature of the shuttle—just like an airliner—that it loses money while sitting on the ground. And the more you fly it, the more cost-effective it will be. To make the shuttle cost-effective, superior to the throw-away systems we have today, you have to insist on short turn-around times. And this means simply that with the exception of a few replacements in critical areas, you had better give the thing more life.

In a normal airplane, for example, a tire must be exchanged after 20 landings or so. So here you have a part where the industry accepts refurbishing of some equipment. In the shuttle, we may accept ablative leading edges or some such a thing that we would replace like tires in an airplane. But if we go way beyond that, then it would really defeat its own purpose.

Q. What kind of a lifetime do you see for the shuttle? A decade? Or two? Or three?

A. Oh, I think the shuttle can be very useful for 20 years.

Q. Do you see any developments in the next decade in the area of booster rockets?

A. Well, of course, the shuttle and its booster will have the most modern type rocket propulsion that we could think of. Most stages of the shuttle will be powered with liquid hydrogen and liquid oxygen.

Q. Aren't you looking forward to the nuclear engine yet?

A. Yea. But we are not planning to fly any nuclear engines from the surface of the earth at all. The Nerva nuclear rocket is planned to be lit up only in orbit. Its main field will be deep space transportation.

Q. Can you estimate the cost of some of these things that you think you'll be doing in space during the next decade?

A. Well, the greatest uncertainty is probably the question of continued inflations. I'd be much more comfortable if I could answer your question in terms of percentage of the gross national product rather than in terms of dollars, because when I see what the dollar buys today, compared to what it bought when we started the Apollo program, it's just two different worlds. But the shuttle should only cost a small fraction of the $23 billion it cost to build Apollo.

Q. Could you put a specific figure on it? There have been estimates of $6 billion.

A. I'm not saying that this is entirely off, but I can't confirm it either. I guess it's probably as good a guess as anyone can make today.

OTHER AEROSPACE HISTORY NEWS

NATIONAL AIR AND SPACE MUSEUM

By Michael Neufeld

Progress on the construction of the renovated Boeing Milestones of Flight Hall continued in the last few months. If you visit the National Air and Space Museum (NASM), not only should you be able to see progress, but you should also begin to notice that some of the elements of the final design are now being put in place. Conservation work has been done in full view of the public on the Bell X-1 Glamorous Glennis, as well as SpaceShipOne and the Ryan NYP Spirit of St. Louis. And artifacts that had been removed from the gallery space for conservation have now started to be reinstalled. Pioneers 10 and 11, Mariner 2, and models of Sputnik and Explorer 1 have been rehung. Beginning after Labor Day 2015, come visit the museum to see LM-2, a real lunar module, unstacked and on the floor for conservation in the middle of the Hall. The grand opening of the renovated hall will be on 1 July 2016. Lead curators for this project are Bob van der Linden and Alex Spencer (Aeronautics), along with Paul Ceruzzi and Margaret Weitekamp (Space History).

> "BEGINNING AFTER LABOR DAY 2015, COME VISIT THE MUSEUM TO SEE LM-2, A REAL LUNAR MODULE, UNSTACKED AND ON THE FLOOR FOR CONSERVATION IN THE MIDDLE OF THE HALL."

Meanwhile, planning is continuing for a complete Mall building overhaul in the years 2018–24, dependent on congressional funding. A complete reconstruction of the mechanical systems of the NASM building is needed, as is the replacement of the exterior stone. The museum will never close, but large sections will be walled off during construction. Current conceptions have the building

The Bell X-1 "Glamorous Glennis" is shown on display at the National Air and Space Museum in Washington, DC. (Photo credit: Eric Long, Smithsonian Institution)

makeover proceed from west to east, one section at a time. The curators and scientists in the research departments (Aeronautics, Space History, and the Center for Earth and Planetary Studies) have completed a new gallery plan for a completely refreshed set of exhibitions for NASM by the mid- to late 2020s. Some existing exhibits will be presented in a revised form, and some will close and be replaced with entirely new exhibitions. (Milestones is the one exhibit that will emerge almost unchanged.) Incorporated in the exhibit planning is a project that has been going on for some time, Destination Moon, which will replace the old Apollo to the Moon gallery, but in a new location. The opening for that exhibit is currently estimated as 2020 or 2021. The lead curators are Michael Neufeld and Allan Needell (Space History).

AMERICAN ASTRONAUTICAL SOCIETY HISTORY COMMITTEE

By Michael Ciancone

History Series Publications

As a result of the persistence and diligence of series editor Dr. Rick Sturdevant, and with the efforts of volume editor Niklas Reinke and copy editor Joni Wilson, Univelt has announced the publication of the 2012 proceedings as volume 43 in the International Academy of Astronautics (IAA) History Series. Univelt is also preparing to publish volume 44, *Pioneering American Rocketry: The Reaction Motors, Inc. (RMI) Story, 1941–1972*, by Frank H. Winter and Frederick I. Ordway III.

Ordway Award

The subcommittee tasked with managing the Ordway Award for Sustained Excellence in Spaceflight History has begun deliberations. It is now anticipated that the award will be presented in conjunction with the Von Braun Memorial Symposium, 27–29 October 2015, in Huntsville, Alabama.

This award is named in memory of Frederick I. Ordway III (1927–2014), human spaceflight advocate and chronicler of the history of rocketry and space travel. The award is presented on an occasional basis by the American Astronautical Society (AAS) and recognizes exceptional, sustained efforts to inform and educate on astronautical history through one or more media, such as 1) writing, editing, or publishing a book series (as opposed to a single title); 2) preparing and presenting exhibits; or 3) producing for distribution through film, television, art, or other non-print media. The award process is managed by the AAS History Committee. Nomination forms are available at *http://www.astronautical.org/awards/ordway*.

Annual Meeting

The History Committee convened a virtual meeting on 13 May 2015 during the Astronauts and Robots Conference at the Jet Propulsion Laboratory (JPL) in Pasadena, California. Topics of discussion included future translation efforts to build on the success of the recently completed translation of *Die Rakete zu den Planetenräumen*, by Hermann Oberth. A number of suggestions are under consideration, including titles by Robert Esnault-Pelterie (French), Yakov Perel'man (Russian), and Sergei Korolev (Russian, under a pseudonym). Additional suggestions are welcome.

New Members

The History Committee is pleased to announce that George James has accepted an invitation to join the Committee.

JOHN W. KLUGE CENTER

The John W. Kluge Center at the Library of Congress is accepting applications for the Baruch S. Blumberg NASA/Library of Congress Chair in Astrobiology. The application deadline is 1 December 2015.

The Astrobiology Chair is a distinguished senior research position in residence at the Library of Congress for a period of up to 12 months. Using research facilities and services at the Library of Congress, the scholar engages in research at the intersection of the science of astrobiology and its humanistic and societal implications. The appointment ensures that the subject of astrobiology's role in culture and society receives considered treatment each year in Washington, DC. A stipend during the term of appointment supports the scholar.

The John W. Kluge Center was established at the Library of Congress in 2000 to foster a mutually enriching relationship between the world of ideas and the world of action, between scholars and political leaders. The Center attracts outstanding scholarly figures to Washington, DC; facilitates their access to the Library's remarkable collections; and helps them engage in conversation with policy-makers and the public.

The Chair is open to scholars in the fields of philosophy, history, religion, astrobiology, astronomy, planetary science, the history of science, paleontology, Earth and atmospheric sciences, geological sciences, ethics, or other related fields. The Chair may undertake research on a range of societal issues related to how life begins and evolves or may examine the religious, ethical, legal, cultural, and other concerns arising from scientific research on the origin, evolution, and nature of life in the universe.

Applications may be submitted online through the Kluge Center's new online application system. Visit *http://www.loc.gov/loc/kluge/fellowships/NASA-astrobiology.html* for more information.

CALL FOR ENTRIES: SHFG THOMAS JEFFERSON PRIZE

The Society for History in the Federal Government (SHFG) seeks entries for its 2016 Thomas Jefferson Prize for research tools published in 2014 or 2015. The prize recognizes the creator(s) of an outstanding research aid (e.g., inventory, index, finding aid, biographical directory, or bibliography) that facilitates the work of those researching the history of the federal government. It will be awarded at the SHFG annual meeting in spring 2016. See *http://www.shfg.org* for criteria, a list of past winners, and general requirements for all SHFG prizes.

A copy of each entry with a letter briefly stating its qualification and merits should be sent to each of the Jefferson Committee members by **30 November 2016**:

1. Jennifer Ross-Nazzal, Ph.D., 2003 Seakale Lane, Houston, TX 77062

2. Alisa Whitley, 5212 Leeward Lane, Alexandria, VA 22315

3. Lincoln Bramwell, Ph.D., 1410 Woodman Ave., Silver Spring, MD 20902

The SHFG, founded in 1979, is a nonprofit professional organization that promotes the study and broad understanding of the history of the United States government. It also serves as the voice of the federal historical community.

UPCOMING MEETINGS

The History Department of the United States Naval Academy will host the 2015 McMullen Naval History Symposium in Annapolis, Maryland, on **16–18 September, 2015**. Visit *http://www.usna.edu/History/Symposium/* for more information.

The Society for the History of Technology will host its annual meeting **8–11 October 2015** in Albuquerque, New Mexico. Visit *http://www.historyoftechnology.org/features/annual_meeting/* for more information.

The 66th International Astronautical Congress will be held **12–16 October 2015** in Jerusalem, Israel. Visit *http://www.iac2015.org/* for more information.

IMAGE IN NASA HISTORY

Because the slots he was designing opened directly into the 8-Foot High Speed Tunnel's hazardous igloo-shaped test chamber, where high levels of pressure, temperature, and noise would be encountered, Ray H. Wright had to don a diving suit before venturing into the test section.

In 1947, Langley was already trying out the slotted-wall idea in the test section of a small pilot tunnel and had learned, apparently serendipitously, that the slots enabled smooth operation not just at very high subsonic speeds, but also at low supersonic speeds. By the time of Chuck Yeager's famous research flight that October, Stack had long since begun considering how to apply the slotted-wall results in two full-size, high-speed tunnels—industrial-scale facilities with huge, powerful fans and test-section diameters of 8 feet and 16 feet, sizable by any era's standards. With Ray Wright's specific design concept, John Stack's vision and leadership, engineer Vernon G. Ward's technology-development contributions, and the NACA Langley technical staff's wind tunnel expertise and experience, the research and development effort led relatively soon to the conversion of

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these two national research facilities: the now-retired 8-Foot High-Speed Tunnel, designated a national landmark in 1985, and the 16-Foot High-Speed Tunnel, later called the 16-Foot Transonic Tunnel and still operational with slotted walls in 1998. The resulting Collier Trophy for Stack and 19 of his colleagues was the first one ever awarded outright for a research tool and the only Collier ever awarded for a ground-based one—even though, as with particle accelerators and detectors for nuclear science, wind tunnels have been crucially important for American aeronautics.

This image was taken on 13 June 1950.

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