News & Notes

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From the Chief Historian

Amid all of the bad news, there are encouraging signs at the NASA History Program Office. One of those is that we've got a new book out—the first in my tenure as Chief Historian—*Psychology of Space Exploration.* I'm not only delighted to see this new book in print (also available for free download), but we are all thrilled with the early signs of interest. The Government Printing Office quickly sold out of their stock, and we are working with them to make sure that the demand can be met. Our "marketing" success is not just a matter of this being a very interesting book, but is also the result of a lot of hard work by our staff (including our energetic interns) working closely with the book's editor, Professor Doug Vakoch, to creatively promote the book. After this success you can bet that we'll be doing more of this sort of creative marketing in the future. In the meantime, you can read more about *Psychology of Space Exploration* elsewhere in this newsletter. Our next book, *When Biospheres Collide*, a book on the history of planetary protection, should be out by the time you read this. Following that, we'll be releasing *Rockets and People, Volume 4: The Moon Race,* the long-awaited final installment of Boris Chertok's memoir of the Soviet/Russian space program. We have many more in line after that, so there is a lot of good reading coming from NASA History.

Although we had to defer our history program review planned for June due to a shortage of travel funds, the good news is that we have

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NASA History Program Office Publishes New Book: *Psychology of Space Exploration*

By Douglas A. Vakoch, *dvakoch@seti.org*

With the end of one era in space travel, marked by the final launch of a U.S. Space Shuttle in July 2011, the NASA History Program Office is looking to the future of space exploration in its new book, *Psychology of Space Exploration: Contemporary Research in Historical Perspective.* Reflecting on the changes in space exploration over the past half century, the book details how space missions have changed over the decades, requiring increasingly talented and flexible astronauts.

Early missions into space were typically brief, lasting only hours or days. Crews were small throughout the 1960s in the U.S. space program, beginning with one astronaut in the Mercury missions, followed by pairs of astronauts on the Gemini flights, and culminating with the Apollo missions of three astronauts travelling to the Moon and back. The early days of space exploration were marked by competition between the U.S. and the Soviet Union, and the astronauts who showed "the right stuff" were not only courageous explorers of this new frontier, but heroes back home.

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In This Issue:

From the Chief Historian (continued)

been able to reschedule it for 1–3 November 2011. We will be holding this important event at the Glenn Research Center and have timed it so that participants can combine the program review with the Society for the History of Technology/History of Science Society/Society for the Social Studies of Science colocated annual meetings in Cleveland, Ohio, 3–6 November. We will have a lot of catching up to do, and some time for brainstorming about how all of us involved in NASA history can more creatively and effectively face the challenges ahead. I hope I'll see many of you sometime that first week of November at Glenn or in downtown Cleveland.

Until then, Godspeed.

William P. Barry
Chief Historian

Psychology of Space Exploration (continued)

As an intensely competitive space race has given way to international cooperation over the decades, the challenges of communicating across cultural boundaries and dealing with interpersonal conflicts have become increasingly important, requiring astronauts to develop additional coping skills and sensibilities.

Beyond Earth's Orbit

In the future, new challenges will face astronauts. Last year, the Obama administration announced its first priority for human exploration beyond Earth's orbit would be a trip to an asteroid by 2025, followed a few years later by a mission to Mars. A trip to the Red Planet would take two years, with no chance of quickly returning to Earth if emergencies arise—a prospect that astronauts have never had to face before.

As we look forward to these future space missions, we can learn much about what's needed for successful space flights by examining earlier missions to the Moon, as well as long-duration stays on the International Space Station.

One of the topics discussed in depth in *Psychology of Space Exploration* is the challenge of working with astronauts from other countries. Many lessons can be learned by examining past multinational missions, such as those on board the Russian *Mir* space station, which hosted astronauts from several countries. In the book, Canadian psychologist Peter Suedfeld and his colleagues discuss how astronauts deal with being a guest on space missions led by a foreign country. Contrary to early reports that astronauts from different countries had conflicts due to cultural differences, these researchers discovered that "minority" astronauts worked well with the astronauts from the host country.

Future Technologies

Historically, astronauts who experience difficulties in space may be reluctant to report the problems to Mission Control for fear of jeopardizing their ability to fly again in the future. But advances in computer technologies will soon allow astronauts to receive guided tutorials on dealing with problems ranging from interpersonal conflict to feelings of depression—all without anyone on Earth knowing about it.

The key is to use self-contained instructional modules, all kept on a flash drive that the astronaut controls, ensuring privacy even in the close quarters of a spacecraft. As a likely technological spinoff of the space program, similar computer programs might be used back on Earth, especially in remote communities where opportunities for face-to-face problem solving may be more limited.

The good news is that training before launch can go a long way in helping astronauts adjust to the stresses of space. Such preflight training will be all the more important in the future, as greater numbers of space tourists join professional astronauts as space explorers.

The Two Cultures

At one level, the essays in Psychology of Space Exploration provide an overview and synthesis of some of the key issues in the psychology of space exploration, as well as a sampling of highly innovative research studies. The characteristic that most clearly sets this collection apart from others, however, is the depth with which the authors have engaged the history of the psychology of space exploration.

All psychologists are familiar with the importance of engaging past research and theory when designing and interpreting new studies. But the contributors to this collection have done much more. They have crafted essays that will be of obvious value to psychologists, psychiatrists, and other behavioral researchers. At the same time, these authors have created a collection with the promise to promote a greater dialogue between psychological researchers and historians of both space exploration and psychology.

Psychologists and historians have quite different guidelines for good scholarship and for communicating their findings. These differences make the essays in this volume—meaningful and accessible even to those not formally trained in the methodologies and mindsets of psychologists—all the more impressive. With the increasing specialization and isolation of academic disciplines from one another in recent decades, these essays serve as a prototype for a broader attempt to bridge the gap between the two cultures of science and the humanities that C. P. Snow identified almost a half century ago—quite fittingly for us, at the outset of the Space Age.

News from Headquarters and the Centers

Headquarters

In the Headquarters Archives, the staff continued to stay busy with reference services, processing, and preservation projects, and the review of boxes on loan to our office from the Federal Records Center (FRC). During the last quarter, we hosted an average of 20 people per month who came in person to conduct research. They visited from Ames Research Center, the National Air and Space Museum, the Naval Research Laboratory (NRL), the Georgia Institute of Technology, Emory University, Princeton University, and King's College in London.

A number of archive projects have been completed recently that researchers will find of interest. A chronological history of NASA budget submissions, 1959–90, and budget estimate books, 1961–77, were digitized and posted to the NASA Headquarters Library Web site at *http://www.hq.nasa.gov/office/hqlibrary/find/newnasadoc.htm.* The staff also digitized *Aeronautics and Space Reports of the President*, 1958–93, which join existing electronic copies of Presidents' Reports at *http://history.nasa.gov/presrep.htm.*

An unexpected find in one of our FRC boxes was the speeches of Milt Rosen. Rosen served at Headquarters from 1958 until 1974 when he retired, rising to Deputy Associate Administrator for Engineering in the Office of Space Sciences. Earlier, he was part of a team of people who came to NASA from NRL when the Vanguard Program was transferred to this Agency. Rosen's speeches have been digitized and will soon be made available at *https://mira.hq.nasa.gov/history/*.

Additionally, the processing of the Office of Legislative Affairs collection, 1958–2000, is complete. This will be a valuable resource to those researching NASA's political history.

Jane Odom represented the office at the spring meeting of the Mid-Atlantic Archives Conference held in Alexandria, Virginia, in May. And during the summer at an Office of Communications All Hands meeting, she was recognized for 25 years of government service by Associate Administrator David Weaver.

Jane Odom (left) and David Weaver, NASA Associate Administrator for the Office of Communications.

1961/1981: Key Moments in Human Spaceflight

NASA Administrator Charles Bolden gives the welcome speech at the joint symposium held by the National Air and Space Museum's Space History Division and the NASA History Program Office titled "1961/1981: Key Moments in Human Spaceflight" on 26–27 April 2011 in Washington, DC.

Chief Historian Bill Barry serves as the moderator for the International Aspirations session at the joint symposium.

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NASA Administrator Charles Bolden, left, meets NASA Interns Katie Goldberg, right, and Jacki Cortese, second from right, prior to testifying before the U.S. House Committee on Science, Space, and Technology on 12 July 2011 at the Rayburn House Office Building on Capitol Hill in Washington, DC. Photo Credit: (NASA/Bill Ingalls)

Ames Research Center (ARC)

On 5 May, the NASA Ames family joined in a *5s Festival* to review and reflect upon their history over the past five years. They enjoyed speeches, food, and a band playing Latin music. A few days later, Pete Worden (below) was roasted upon surviving five years as Ames Center Director.

Below, Hans Mark (left) plays straight man as Ames Deputy Director Lew Braxton illustrates a quirk of Worden's management style.

Jack Boyd (above) kept very busy with interviews on the occasion of the final flight of the Space Shuttle. His remarks appeared in print, on the Web, on the radio, and on television, with interviews on KQED, NBC, and CBS. Jack joined former Center Director Scott Hubbard and former astronaut Garrett E. Reisman to discuss the history and future of space exploration on a local National Public Radio program, *Forum*. At an Ames live broadcast of the final launch on 8 July, Associate Director Steven Zornetzer delivered remarks, Jack presented a history of Ames contributions to the Space Shuttle, and life scientist Ken Souza discussed the many life science experiments on board STS-135. On 15 July, Jack was part of a live press conference with crews from the Space Shuttle and Space Station, in which President Barack Obama also participated.

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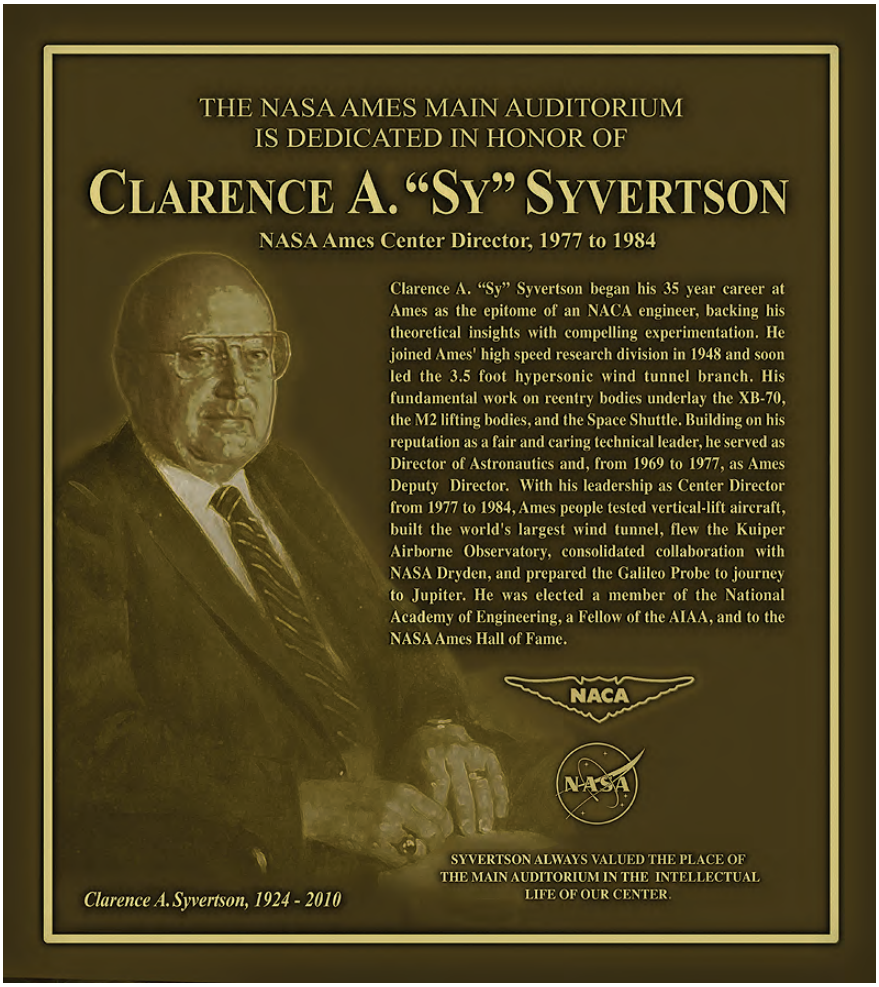

Former Ames Center Director "Sy" Syvertson knew the history of Ames intimately, and cared greatly about building Ames as a community of people. Upon his death last fall, Ames dedicated its Main Auditorium in his honor. On 15 July, with Sy's family attending, a bronze plaque (above) was unveiled to mark how his career and the history of the Center intertwined. Sy will be missed by all.

In archival news, intern Holly Thomason completed processing the *John D. Mihalov Papers, 1960–1997* (PP05.22-JM, 18 cubic feet) and April Gage processed the *Lunar Prospector Project Records, 1995–1998* (AFS8000.5-LP, 6 cubic feet). Finding aids for both collections are now posted on the Online Archive of California (*http://www.oac.cdlib.org/institutions/NASA+Ames+Research+Center*). Former intern Ratana Ngaotheppitak won the Jean Wichers Award for Professional Practice from San Jose State University for her work in the Ames archives, and she is now working with the life sciences data archive at Ames. April also did a stellar job as vendor relations coordinator for a San Jose meeting of the Society of California Archivists.

Mars in 3-D is now remastered and available for viewing. This short film debuted in 1979 using images from the stereoscopic cameras on the Viking Landers

and with narration by principal investigator Elliott Levinthal. Michael McNabb, who as a graduate student at Stanford composed computer music for the film, remastered the film using original 16-millimeter film footage and sound reels from the Ames archives. The film is summarized on the Ames History Office Web site (*http://history.arc.nasa.gov/finding_aids_feature201107.htm*) and can be viewed in anaglyph form on YouTube *(http://www.youtube.com/watch?v=ubRHSg5daMs)*. *Mars in 3-D* is also available for presentation in Digital Cinema 3D. Showings are planned at Stanford and at Ames.

Dryden Flight Research Center (DFRC)

Curtis Peebles's *The Spoken Word II: Recollections of Dryden History, Beyond the Sky*, (Monographs in Aerospace History #42, NASA SP-2011-4542) was released in July. This volume contains interviews from the 1960s and very early 1970s, spanning the X-15 and lifting bodies, among other projects, and we owe thanks to Steve Garber and Headquarters for seeing the actual publication through production. Peebles has also completed his most recent manuscript, *Thinking on the Fly: Intelligent Flight and Propulsion Control Development at NASA Dryden*, which is scheduled to go to press by the end of the fiscal year.

Peter Merlin completed his draft manuscript, *Robots and Remote Pilots: Remotely Piloted Aircraft Systems Safety—Lessons Learned*. The book has two parts. Section 1 contains a series of case studies of accidents and incidents involving autonomous and remotely piloted aircraft involved in testing and experimental research activities. Section 2 introduces the reader to the Human Factors Engineering aspects of unpiloted aircraft and a human factors approach to mishap investigations. While awaiting publication of *Breaking the Mishap Chain: Human Factors Lessons Resulting from Aerospace Accidents and Incidents*, Merlin gave a presentation based on several chapters from that book at the Aerospace Medical Association's (AsMA) 82nd Annual Scientific Meeting in Anchorage, Alaska. "Lessons of History: Organizational Factors in Three Aviation Mishaps," highlighted several case studies and was featured as a peer-reviewed abstract in the AsMA journal, *Aviation, Space, and Environmental Medicine*, Vol. 82, Issue 3, March 2011. Merlin has also been involved with capturing the history of the Space Shuttle program as the orbiters enter retirement. He wrote several historical features about Dryden's contributions to Shuttle development for the NASA Web site, appeared in Guy Noffsinger's *Space Shuttle* documentary, and is assisting with several history publications related to the Shuttle program. He has also given several educational presentations at Dryden and at the AERO Institute in Palmdale, California, on such topics as the Shuttle and the Dawn robotic exploration mission to the asteroid belt. Merlin has provided assistance to several researchers looking for material at the Center, most recently Bruce Larrimer, who is writing a book on the AD-1 oblique wing for Richard Hallion and Tony Springer.

Christian Gelzer has nearly finished his interviews for the Shuttle-related books he's working on. Among those he's talked to are Gordon Fullerton, former Shuttle pilot and commander; George Grimshaw and Joe D'Agostino, both of whom were in charge of the Shuttle office at Dryden; and John McTigue, long-time engineer

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at the Center and a key member of the Approach and Landing Tests in 1997. And Gelzer's been writing pieces here and there regarding the Shuttle and Dryden's role in the program. Like Pete, he's sat for a number of interviews with various media regarding the end of the Shuttle program, including National Public Radio.

Betty Love continues cataloguing material in the history collection. She has been going through several linear feet of X-15 documents to cull duplicates from another individual accession, and she took time recently to look over several boxes of flight tracks of sundry aircraft at the Center before making arrangements to send them to the National Archives and Records Administration (NARA).

Glenn Research Center (GRC)

Glenn archivist Bob Arrighi (Wyle Informations Systems, LLC) was featured on the local television show "Berea City Schools Community of Learning." The interview highlighted what an archivist does, why NASA preserves its history, how Glenn Research Center came to be, and what historic mitigation is. The episode (#369) can be viewed online at *http://bereaschools.pegcentral.com/index.php*.

Work continues on the documentation of the Propulsion Systems Laboratories (PSL). The manuscript for the monograph that will be published on the facility has gone for final review. In the meantime, an interactive history of the facility featuring photos, videos, and drawings can be viewed on the PSL History Web site at *http://pslhistory.grc.nasa.gov/.*

A new Web site detailing the contributions of the Glenn Research Center to the Shuttle program has been created. Highlights include Glenn's role in the Shuttle's development, microgravity experiments that have flown on the Shuttle, Return to Flight activities, and the achievements of Ohio's 20 astronauts involved in the Shuttle program. The Web site can be found at *http://www.nasa.gov/mission_pages/shuttle/flyout/GlennShuttle.html.*

Jet Propulsion Laboratory (JPL)

During the last few months, Erik Conway has been engaged in responding to review comments on his Mars exploration history. He received hundreds of comments from six internal reviewers and has finished responding to all but one. That one asked for the book to be expanded to encompass the Mars Reconnaissance Orbiter and Mars Phoenix missions. The Phoenix engineering team found and corrected a number of major design flaws in the hardware they inherited from the Surveyor 2001 lander project (which was itself a clone of the Mars Polar Lander lost in 1999), and omitting the project left the "Faster, Better, Cheaper" storyline and analysis incomplete. Agreeing with the reviewers, he is currently researching and writing the two new chapters and plans to have them done by the end of the calendar year.

Conway also finished reviewing the documents JPL holds from the old Surveyor lunar program of the 1960s. As in his last update, he needs to visit the program

manager's records in the Suitland Federal Records Center but has delayed the trip to finish the Mars book.

JPL's artifacts liaison, Anita Sohus, has been working with the nearby Huntington Library to help equip an upcoming exhibition, *Blue Sky Metropolis*. Aimed at illuminating the aerospace industry's impact on California in the 20th century, the exhibit will feature one of the engineering models of JPL's Explorer 1 as well as a cutaway model showing its payload. *Blue Sky Metropolis* will open in October 2011 and close in January 2012. A brief description of the exhibit can be found at *http://www.huntington.org*.

Johnson Space Center (JSC)

The JSC Career Exploration Program named a history major as its college Student of the Year for 2010–2011. The presentation was made to Rebecca Hackler during an awards ceremony held 19 July in Houston. Rebecca worked with the JSC History Office and recently completed a master's program in Central and Eastern European Studies with Jagiellonian University in Kraków, Poland, achieving a perfect score on her master's thesis. Rebecca also earned various honors on the undergraduate level, including graduating summa cum laude with a degree in history from Texas Lutheran University. In addition to her experience in Poland, she has studied abroad in Spain and the Czech Republic and speaks four languages.

Rebecca Hackler

Rebecca's job duties were varied and diverse for the History Office: sometimes simple and other times complex, changing daily, and, on occasions, changing in mid-task. Her assignments included audio-checking and annotating oral history transcripts, creating archival materials, and researching topics as preparation for oral history sessions. She edited oral history transcripts, indexed transcripts, searched archival materials, transferred audio from obsolete media to digital files, operated recording equipment during interviews, and updated vital metadata to the JSC History Database. For the JSC History Collection, she worked in the archives to organize boxes of donated materials into an archival-ready collection.

During the announcement of her selection, Rebecca was recognized for her professionalism in her work by Veronica Seyl, Career Exploration Program Manager for JSC: "Although a temporary position, Rebecca joins in as if she is a permanent member, giving excellent support wherever and whenever asked. She has a definite interest in all projects that are being conducted in the office, offering assistance and suggestions as often as possible. The History Office team appreciates

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her punctuality, dependability, efficiency, dedication, and professionalism and enjoys her personality. Most importantly, the team trusts her work implicitly and knows her products reflect quality and thoroughness."

Rebecca, a Universities Space Research Association (USRA) employee, ended her job at NASA in August, and this fall will begin a fellowship in Scotland at the University of Glasgow for a master's degree in museum studies.

Dr. Jennifer Ross-Nazzal, the Johnson Space Center Historian, received a JSC Group Achievement Award this past summer for her contributions to the recently released publication Wing*s in Orbit: Scientific and Engineering Legacies of the Space Shuttle, 1971–2010*.

The 500-plus-page book describes the scientific, engineering and cultural contributions of the Space Shuttle through text, photographs, and graphics, written or selected by those who worked in the Shuttle program. The book features a wide range of contributors, including the first Space Shuttle crew and many former flight directors, engineers, and program managers.

Jennifer contributed to the NASA publication by writing on the history of the Space Shuttle program; the impact from the *Challenger* and *Columbia* accidents; the social, cultural, commercial, and economic impact of the Space Shuttle program; and a human-interest story about mission operations and STS-124. She conducted extensive research, as well as a number of oral history interviews, to provide a complete and engaging text for these five chapters.

Jennifer has served as the JSC Historian since 2004 and has published numerous papers on NASA history. Earlier this year, the University of Washington Press released Jennifer's book, *Winning the West for Women*, about the life of suffragist Emma Smith DeVoe.

Dr. Jennifer Ross-Nazzal

Marshall Space Flight Center (MSFC)

NASA has flown its last Space Shuttle mission, and the Marshall History Office expects to see its already wide collection of Shuttle documents, videos, photographs, and other program elements expand in the coming months. Many Shuttle employees at the Center are expected to invite the MSFC History Office staff to accept collections of the now historical data that the engineers, administrators and Shuttle staff have acquired over the 30-year life of the Shuttle.

Tracy McMahan will return to the History Office in September as a cooperative education student and plans to complete a brief history of Marshall's role in the Ares Program. Tracy, who previously served as the historian for the Ares project at Marshall, has already acquired several linear feet of Ares documentation that she has reviewed as source material for the monograph. In addition, the transcription of the Ares oral history interviews that Tracy conducted has been assigned to a transcription service.

Although many Marshall employees were naturally focused on the end of the Shuttle program this summer, July also marked the 40th anniversary of the Lunar Roving Vehicle that Apollo astronauts used on their last three missions in the 1970s.

The Marshall History Office worked this past summer with property officials at the Center who were accountable for the property resulting from the deactivation of Marshall's Neutral Buoyancy Simulator some years ago. Mike Wright and Molly Porter have been collecting and reviewing documentation about the history of that facility.

Finally, the Marshall History Office staff has been invited to provide photographs, documents, and videos that the U.S. Space and Rocket Center in Huntsville, Alabama, will exhibit to mark the hundredth birthday of Wernher von Braun in 2012.

Stennis Space Center (SSC)

Visitors to NASA's John C. Stennis Space Center's traveling exhibit at designated public libraries will be able to record their memories and stories about the space Center as part of Stennis's yearlong 50th anniversary celebration, which culminates in October.

Visitors will learn of the Facility's rocket engine testing history as well as the cutting-edge Earth science work conducted through the Applied Science and Technology Project Office. Commemorative items such as bookmarks, fact sheets, and stickers will be available.

The exhibit highlights 50 years of the Nation's largest—and premier—rocket engine test facility. NASA publicly announced plans to build the facility on 25 October 1961. Originally built to test the massive Saturn rocket engines and stages needed to carry humans to the Moon, Stennis has grown into a unique federal city, home to more than 30 federal, state, academic, and private organizations and several technology-based companies. These companies and agencies share the cost of owning and operating the facility, making it more cost-effective for each entity to accomplish its independent mission.

However, rocket engine testing remains the primary mission focus at Stennis. In addition to its Apollo Program testing, the facility tested every main engine used in more than 130 Space Shuttle flights. Stennis is now preparing three stands to

test next-generation rocket engines that will carry humans beyond low-Earth orbit into deep space.

In addition, the facility has embraced the call for NASA to work with private companies to enable commercial space travel. In 1998, Stennis partnered with Pratt & Whitney Rocketdyne to test RS-68 engines used for Delta IV rocket launches. Last year, it partnered with Orbital Sciences Corporation to test Aerojet AJ26 rocket engines that will power commercial cargo flights to the International Space Station.

Recent Publications and Online Resources

NASA Publications

Psychology of Space Exploration: Contemporary Research in Historical Perspective (NASA SP-2011-4411), edited by Douglas A. Vakoch. Through essays on topics that include survival in extreme environments and the multicultural dimensions of exploration, readers will gain an understanding of the psychological challenges that have faced the space program since its earliest days. This volume is available at *http://history.nasa.gov/SP-4411.pdf*, and e-book versions are available at *http://www.nasa.gov/connect/ebooks/hist_psych_space_detail.html.*

When Biospheres Collide: A History of NASA's Planetary Protection Programs (NASA SP-2011-4234), by Michael Meltzer. Planetary protection includes concerns about how to avoid contaminating extraterrestrial environments while exploring the universe, as well as the potential risks in introducing foreign biological matter from these places to home environments. The book is available at *http://history.nasa.gov/SP-4234.pdf,* and e-book versions are available at *http://www.nasa.gov/connect/ebooks/when_biospheres_collide_detail.html*.

The Spoken Word II: Recollections of Dryden History Beyond the Sky (NASA SP-2011-4542), edited by Curtis Peebles. This collection of oral histories continues the narrative from his earlier work, *The Spoken Word: Recollections of Dryden History, The Early Years* (SP-2003-4530). The monograph will be available online soon, but interested readers may also request copies by contacting the NASA History Program Office or DFRC History Office.

*Aeronautics and Astronautics: A Chronology, 2006 (*NASA SP-2011-4032), compiled by Alice R. Buchalter and William Noel Ivey. This publication is now available online in PDF format at *http://history.nasa.gov/sp4032.pdf*.

*Aeronautics and Astronautics: A Chronology, 2007 (*NASA SP-2011-4033), compiled by Marieke Lewis. This publication is now available online in PDF format at *http://history.nasa.gov/sp4033.pdf*.

NASA Multimedia

The video from the joint symposium held by the National Air and Space Museum's Space History Division and the NASA History Program Office, titled "1961/1981: Key Moments in Human Spaceflight," on 26–27 April 2011 in Washington, DC, is available online at *http://www.ustream.tv/recorded/14289321.*

Other Government Publications

The National Academies Press now offers free downloads for all publications in PDF format online at *http://www.nap.edu*. This includes their current catalog of more than 4,000 books plus future reports.

Commercially Published Works

Compiled by Chris Gamble

History of Rocketry and Astronautics, vol. 34, edited by Otfrid G. Liepack, American Astronautical Society (AAS) History Series, vol. 34, International Academy of Astronautics (IAA) History Symposia, vol. 23 (AAS/Univelt, Inc., 2011). These are the proceedings of the 37th History Symposium of the International Academy of Astronautics, Bremen, Germany, 2003.

History of Rocketry and Astronautics, vol. 35, edited by Å.Ingemar Skoog, AAS History Series, vol. 35, IAA History Symposia, vol. 24 (AAS/Univelt, Inc., 2011). These are the proceedings of the 37th History Symposium of the International Academy of Astronautics, Vancouver, British Columbia, Canada, 2004.

First Contact: Scientific Breakthroughs in the Hunt for Life Beyond Earth, by Marc Kaufman (Simon & Schuster, April 2011). In this book, the author takes us to the frontiers of astrobiology's quest for extraterrestrial life and shows how this quest is inextricably linked with the quest to understand life on Earth.

Next Generation Air Transportation System: The Future of Flight, edited by Donna M. Blanchard (Nova Science Publishers, January 2011). The NextGen Air System is the transformation of the radar-based air-traffic control system to a satellite-based system. This book provides an overview of its implementation, phases of flight, and some of the technologies being used as its foundation.

Space Policy and Its Ramifications, edited by John P. Ramos (Nova Science Publishers, January 2011). This book looks at NASA's efforts over the past years to implement the Vision for Space Exploration. Major milestones derived from the Vision include: the end of the Space Shuttle missions, the new spacecraft intended to replace the Shuttle, and whether to extend the operation of the International Space Station. At the same time concerns grow about whether NASA can accomplish everything it has been asked to do without budget increases. This book explores the current U.S. space policy and its ramifications.

Sputnik: The Shock of the Century, by Paul Dickson (Walker & Company, reprint edition, April 2011). This book chronicles the dramatic events and developments

leading up to and emanating from Sputnik's launch. By shedding new light on a pivotal era, Paul Dickson expands our knowledge of the world we now inhabit, and he reminds us that the story of Sputnik goes far beyond technology and the beginning of the Space Age and that its implications are still being felt today. Note: Originally published in 2001.

Defence and Discovery: Canada's Military Space Program, 1945–74, by Andrew B. Godefroy (University of British Columbia Press, April 2011). In this book, the author presents the first comprehensive examination of the origins, development, and impact of Canada's space program.

NASA Space Shuttle Manual: An Insight into the Design, Construction and Operation of the NASA Space Shuttle, by David Baker (Zenith Press, April 2011). The author describes the origin of the reusable launch vehicle concept during the 1960s, its evolution into a viable flying machine in the early 1970s, and its subsequent design, engineering, construction, and operation.

Russian Space Probes: Scientific Discoveries and Future Missions, by Brian Harvey and Olga Zakutnyaya (Springer-Praxis, May 2011). *Russian Space Probes* gives for the first time the definitive history of Soviet-Russian space science and assesses the actual achievements of the Russian space program in furthering our knowledge of the solar system.

NASA Project Gemini Familiarization Manual Manned Satellite Spacecraft, by NASA and McDonnell Aircraft (Periscope Film LLC, May 2011). Dating from September of 1965, this manual explains all the systems aboard the Gemini space capsule, including the cabin controls, sequence, electrical power, cooling, guidance and control, communications, and retrograde rocket and the landing systems and procedures.

Project Mercury Familiarization Manual Manned Satellite Capsule, by NASA and McDonnell Aircraft (Periscope Film LLC, May 2011). This manual, dating from June 1962, explains all the systems aboard the Mercury space capsule, including cabin controls, environmental and stabilization controls and systems, launch and reentry sequence procedures, and navigation and communications equipment and procedures.

LEM Lunar Excursion Module Familiarization Manual by Grumman Aircraft Engineering Co. (Periscope Film LLC, May 2011). Created for NASA by Grumman in 1964, this LEM Familiarization Manual provides an operational description of all subsystems and major components of the lunar lander. It includes sections about the LEM mission, spacecraft structure, operational subsystems, prelaunch operations, and ground-support equipment.

Saturn V Flight Manual, by NASA (Periscope Film LLC, June 2011). This manual was standard issue to the astronauts of the Apollo and Skylab eras. It contains information about the Saturn V system, range safety and instrumentation, monitoring and control, prelaunch events, and pogo oscillations.

Architecture for Astronauts: An Activity-based Approach, by Sandra Häuplik-Meusburger (Springer, June 2011). Living and working in extraterrestrial habitats means being potentially vulnerable to very harsh environmental, social, and psychological conditions. These constraints result in a very demanding "partnership" between the habitat and the inhabitant. This book is the result of researching the interface between people, space, and objects in an extraterrestrial environment.

Trailblazing Medicine: Sustaining Explorers During Interplanetary Missions, by Erik Seedhouse (Springer-Praxis, May 2011). To gain a complete understanding of the effects of space on the human body and to create tools and technologies required for successful exploration, space medicine will become an increasingly collaborative discipline incorporating the skills of physicians, biomedical scientists, engineers, and mission planners. In this book, the author examines the future of space medicine.

Basics of Space Flight, by Dave Doody (Bluroof Press, May 2011). This book identifies the many fields and concepts associated with robotic interplanetary space exploration and shows how they operate together.

Neil Armstrong: The Quest for His Autograph, by Anthony Pizzitola (CreateSpace, May 2011). An autograph study for autograph collectors and the public interested in Neil Armstrong, and why the first man on the Moon refuses to sign.

Apollo Spacecraft News Reference - Command & Service Module, edited by Robert Godwin (Apogee Prime, May 2011). Along with the companion Lunar Module book, this volume comes with an accurate replica of the original 1960's cover, and the pages are set out in the same sequence as the original, providing in-depth details about the Apollo spacecraft in the exact words of the contractors who built them.

Apollo Spacecraft News Reference - Lunar Module, edited by Robert Godwin (Apogee Prime, June 2011). Along with the companion Command Module book, this volume comes with an accurate replica of the original 1960s cover, and the pages are set out in the same sequence as the original, providing in-depth details about the Apollo spacecraft in the exact words of the contractors who built them.

Apollo Advanced Lunar Exploration Planning, edited by Robert Godwin (Apogee Prime, June 2011). This book was one of the principal resources used by NASA in the 1960s to plan for long-term lunar exploration. It investigates the details of the various advanced Apollo studies conducted by NASA in the late 1960s and includes graphics and illustrations of advanced Apollo hardware capable of sustaining explorers on the lunar surface for weeks at a time.

Realizing Tomorrow: The Path to Private Spaceflight, by Chris Dubbs and Emeline Paat-Dahlstrom (University of Nebraska Press, June 2011). This book traces the lives of the individuals who shared the dream that private individuals and private enterprise belong in space. *Realizing Tomorrow* provides a behind-the-scenes look at the visionaries, the crackpots, the financial schemes, the legal wrangling,

the turf battles, and—underpinning the entire drama—the overwhelming desire of ordinary people to visit outer space.

The Business of Space: The Next Frontier of International Competition, by Louis Brennan and Alessandra Vecchi (Palgrave Macmillan, July 2011). As the space industry is undergoing rapid commercialization across a wide number of areas, there is a need for a business perspective on the industry. Tracing its origins from the middle of the 20th century as a government and military domain, the authors look at the ongoing evolution of space exploration and travel, and they forecast what might happen in the industry.

Burt Rutan's Race to Space: The Magician of Mojave and His Flying Innovations, by Dan Linehan (Zenith Press, July 2011). *Burt Rutan's Race to Space* showcases Rutan's Herculean efforts to not rely solely on governments for expanding humanity's presence beyond Earth.

Soviet Robots in the Solar System: Mission Technologies and Discoveries, by Wesley T. Huntress, Jr., and Mikhail Ya Marov (Springer-Praxis, July 2011). This book provides a history of the Soviet robotic lunar and planetary exploration program from its inception with the attempted launch of a lunar impactor in 1958 to the last launch in the Russian national scientific space program in 1996. *Soviet Robots in the Solar System* chronicles the scientific and engineering accomplishments of this enterprise from its infancy to its demise.

But for the Grace of God, by Bill Pogue (Soar with Eagles, 1st edition limited signed copy, 2011). The memoirs of Skylab IV astronaut Bill Pogue.

From The TRENCH of Mission Control to The Craters of The Moon: Stories from the Men of Mission Control's Flight Dynamics Group: "The Trench", by The Trench Team, with contributions from Glynn S. Lunney, Jerry C. Bostick, H. David Reed, Charles Franklin Deiterich III, Maurice Kennedy, William J. Boone III, and William Stoval (Blurb, May 2011). This book is a collective effort on the part of many of the NASA flight controllers who "manned" the front row of consoles in Mission Control during the preeminent days of America's piloted spaceflight program. They were known as The TRENCH. They have contributed their own mini-autobiographies of life events that shaped their character and their roles and contributions that carried humans to the Moon.

The Shirtsleeve Invention, by Gloria Beasley Lausten (Xlibris Corporation, December 2010). This is the story of Bob Beasley, who was the "father" of LI-1500, the material that kept the Space Shuttle astronauts in comfortable shirtsleeve weather inside their craft when the temperature was 2,400°F outside.

Fifty Years on the Space Frontier: Halo Orbits, Comets, Asteroids, and More, by Robert W. Farquhar (Outskirts Press, June 2011). An autobiographical account of one man's 50-year career in creating, selling, designing, and implementing deep space missions. The book tells the story of how the author was able to

achieve several important space "firsts" despite difficult technical, management, and programmatic hurdles.

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.

Russian Publications

Encyclopedias

Kosmonavtika i raketostroyeniye Rossii: biograficheskaya entsiklopediya, edited by A. N. Perminov (Moscow: Stolichnaya entsiklopediya, 2011), 840 pages

English title: *The Cosmonautics and Rocket Industry in Russia: A Biographical Encyclopedia*

This book was published under the sponsorship of the Federal Space Agency (Roskosmos) in the framework of the Federal Target Program "Culture of Russia." It's a biographical encyclopedia that includes articles on 2,700 leaders of the space program (individuals from industry, scientists, engineers, designers, military leaders, and cosmonauts). The authors of the articles are leaders and managers of major Russian space organizations. One of the contributors was M. A. Pervov, one of the most respected space historians in Russia.

Vsemirnaya entsiklopediya kosmonavtiki, 2-y tom, edited by A. N. Perminov (Moscow: Voyennyy parad, 2011), 500 pages

English title: *The Global Encyclopedia of Cosmonautics (Vol. 2)*

This is the second of two volumes of a major reference work published under the sponsorship of the Federal Space Agency together with the Russian Academy of Sciences, the Ministry of Defense of the Russian Federation, and the K. E. Tsiolkovskiy Russian Academy of Cosmonautics. The first volume (504 pages) was published in 2002, and the second volume begins with the letter "L." This appears to be the long-awaited update of the famous *Kosmonavtika: entsiklopediya* (1985) that was considered the most important official reference work on the Soviet space program. Volume 2 includes more than 5,000 articles about all the countries engaged in space-related activities and includes articles on space research, scientific research, space systems, subsystems, vehicles, projects, research programs, organizations, and enterprises involved in space programs, plus biographies of cosmonauts, scientists, and creators of rocket-space technology. It includes more than 4,000 photographs and drawings.

Russian Publications (continued)

Primary Source Collections

Chelovek. Korabl'. Kosmos: sbornik dokumentov k 50-letiyu poleta v kosmos Yu. A. Gagarina, edited by A. N. Artizov (Moscow: Novyy khronograf, 2011), 874 pages

English title: *Man. Ship. Space. A Collection of Documents on the 50th Anniversary of the Spaceflight of Yu. A. Gagarin*

This book was issued by the Federal Space Agency, the Federal Archives Agency, and the Russian State-Archive of Scientific-Technical Documentation (RGANTD). It is undoubtedly the most important primary-source collection issued in anticipation of the Gagarin anniversary. It contains hundreds of documents from various Russian archives that were previously marked "top secret" and declassified only recently. The documents date from 1949 to 1961 and contain information about the creation of Vostok, the preparation of Gagarin's flight, and Gagarin himself. These documents provide unprecedented detail on Gagarin's historic mission.

Pervyy pilotiruyemyy polet (two vols.), edited by A. N. Perminov (Moscow: Rodina Media, 2011)

English title: *The First Manned Flight*

This two-volume work was prepared by the Federal Space Agency, the Federal Archives Agency, the Russian Academy of Sciences, and the Archive of the President of the Russian Federation. The editorial board is headed by V. A. Davydov, the deputy chief of Roskosmos. This is another highly significant collection that includes declassified archival documents on the preparation and implementation of Gagarin's flight. Volume 1 contains documents from 1946 to 1961 on key organization, managerial, and technological issues and documents on the personal life of Gagarin. Volume 2 contains documents on the preparation, implementation, and results of Gagarin's flight. A lot of important Russian space luminaries were involved in the preparation of this volume including: current or former officials of the Russian space industry (Perminov, Koroteyev, Popovkin, Lopota), designers/scientists (Chertok, Legostayev, Akim, Ivanovskiy), former cosmonauts (Baturin, Kovalenok, Leonov, Tereshkova, Volynov, Krikalev, Ryumin) and the prominent military historian Vladimir Ivkin.

Sovetskiy kosmos: spetsial'noye izdaniye k 50-letiyu poleta Yuriya Gagarina, 720 pages

English title: *Soviet Space: A Special Publication on the 50th Anniversary of the Flight of Yuri Gagarin*

This is another highly significant collection of primary-source documents issued as part of the annual collection of documents of the *Vestnik arkhiva prezidenta Rossiyskoy Federatsii* [Journal of the Archive of the President of the Russian Federation]. This collection of papers on the early Space Age includes government policy documents from August 1955 to February 1966. There is a lengthy

appendix that has many newly declassified documents related to the death of Yuriy Gagarin.

50 let poleta Gagarina (Moscow: MAKD, 2011)

English title: *50 Years of Gagarin's Flight*

Vol. 1: 256 pages, 16 illustrations; Vol. 2: 224 pages, 16 illustrations

These two volumes were published on the initiative of the Federal Space Agency with the support of TsNIImash's International Association of Space Activities Participants (IASP, or MAKD in its Russian abbreviation). The first volume (titled *Doroga v kosmos. Zapiski letchiki-kosmonavta sssr*, or *Road to Space: Notes of a Pilot-Cosmonaut of the USSR*) contains recollections of Gagarin on his life. The second volume (titled *108 minut i vsya zhizn'*, or *108 Minutes and a Whole Life*) includes the memoirs of Gagarin's mother, his wife, friends, etc.

Pervyy v kosmose (Smolensk: Yu. A. Gagarin Joint Memorial Museum, 2011), 232 pages

English title: *First in Space*

This interesting volume contains documents, memoirs, photographs, and other materials stored at the Yu. A. Gagarin Joint Memorial Museum in Smolensk.

Commercially Published Works

Gagarin izvestnyy i neiztvestnyy, by V. P. Taran (Moscow: RTSoft, 2009), 152 pages

English: *Gagarin Known and Unknown*

This is a beautifully illustrated large-format coffee table book on the life of Yuriy Gagarin. It includes photographs on all aspects of Gagarin's life, his family life, his life as a cosmonaut, his international tours, and his training. Pictures of Gagarin are interspersed with images of rare memorabilia from the 1960s.

7 pobed v kosmose i yeshche 42 sobytiya otechestvennoy kosmonavtiki kotoryye vazhno zhat' (Moscow: Eksmo, 2011), 240 pages

English title: *7 Victories in Space and 42 More Events of National Cosmonautics Which Are Important To Know*

This is a large-format, fully illustrated book aimed at a general audience. The authors describe the seven most important "victories" of the Soviet space program (Tsiolkovskiy, *Sputnik*, the Gagarin flight, the Leonov spacewalk, Lunokhod, *Mir*, and the Glonass navigation system). The book was prepared jointly with the editors of *Rossiyskiy kosmos* [Russian Space], the official journal of Roskosmos.

Russian Publications (continued)

Pervyy navsegda, by O. L. Klimashevskaya (Moscow: IIRP, 2011), 712 pages

English title: *First Always*

This volume was published with the support of the Federal Space Agency by the Institute for the Study of Reform and Business. It includes an introduction from Roskosmos head Anatoliy Perminov as well as congratulatory wishes from both Dmitry Medvedev and Vladimir Putin. This richly illustrated book—folio size (24 x 32 centimeters) in Morocco binding with gold lettering—contains much new information on Gagarin, based on documents, photos, and memoirs of relatives, friends, and colleagues. There are separate chapters dedicated to pioneers of the Space Age, the history of Baykonur, human spaceflight, and international cooperation in space.

Pokoriteli kosmicheskogo Olimpa, by R. Yu. Danilin, V. I. Lyskikov, and M. V. Chereshnev (Moscow: Restart, 2010), 360 pages

English title: *Conquerors of the Space Olympus*

This fully illustrated book is a survey of the long history of Russian/Soviet human spaceflight and a chronicle of all orbital-piloted flights. It also contains information on all organizations involved in the Russian human spaceflight program, including the Space Forces, Roskosmos, the Kazakh national space agency, etc.

Samarskiye stupeni "Semerki," edited by A. N. Kirilin (Samara: Agni, 2011), 256 pages

English title: *The Samara Stages of the "Seven"*

This book, sponsored by TsSKB-Progress, is a good popular history of the famous R-7 (Semyorka) launch vehicle and all its various descendents, including the Soyuz-FG, which continues to launch cosmonauts to the International Space Station. Sergey Korolev's R-7 was initially manufactured at the famous Factory No. 1 in Samara (formerly Kuybyshev), but, by the mid-1960s, this factory (and its associated design bureau, TsSKB) took over all design responsibilities for further variants. The book includes details (technical descriptions, historical documents, memoirs, etc.) about all variants of the R-7 in the past 50 years.

Rasskazy o Gagarine, by Yuriy Nagibin (Moscow: Detskaya literature, 2011)

English title: *Stories About Gagarin*

This book is aimed at the juvenile market. It's a fully illustrated large-format book on the life of Gagarin.

Memoirs

Vyatka-Baykonur-Kosmos, by V. P. Savinykh (Moscow: MAKD, 2010), 256 pages

English title: *Vyatka-Baykonur-Space*

This book, published with the help of the International Association of Space Activities Participants (MAKD), was timed to coincide with the 50th anniversary

of Gagarin's flight. These are the memoirs of cosmonaut Viktor Savinykh, who flew three lengthy missions to Soviet space stations in the 1970s and 1980s. The book includes excerpts from Savinykh's diaries on missions to *Salyut-6* (1978) and *Salyut-7* (1985). The latter mission was one of the most dangerous and spectacular missions of the space station era when Savinykh and his commander Vladimir Dzhanibekov rescued and brought to life the "dead" space station *Salyut-7*. The book contains unexpurgated mission transcripts of conversations between the crew and TsUP (Flight Control Center) during this mission. He also devotes a chapter to international expeditions to *Mir*. The book includes excerpts from letters from Savinykh's family and photos from the collection of V. A. Dzhanibekov. The book includes 32 pages of illustrations.

O vremeni i o sebye, by P. R. Popovich (Moscow: MAKD, 2010), 448 pages

English title: *On Time and About Myself*

This book was also published by MAKD with the sponsorship of TsNIImash (Central Scientific-Research Institute of Machine Building). These are the unexpurgated memoirs of the one of the early (and legendary) cosmonauts, Pavel Popovich (who died in 2009). He covers the entire gamut of his life, from the early years of cosmonaut training to his Vostok mission in 1962 and his second space mission in 1974. A large portion of the memoir is dedicated to his impressions of Gagarin. It includes 32 pages of illustrations.

Yuriy Gagarin: glazami materi, edited by A. T. Gagarina and T. A. Kopylova (Moscow: Kul'turnaya revolyutsiya, 2011)

English title: *Yuriy Gagarin: A Mother's View*

This book consists of two parts. The first part is a new version of the book *Pamyat' serdtsa* [Memory of the Heart], by Gagarin's mother (Anna Timofeyevna) and writer Tat'yana Kopylova, which was originally published in various editions in the 1980s. The second part, titled *Raskrytyye stranitsy* [Pages Disclosed], written by Kopylova alone, has much "new" biographical information on Gagarin. The book is richly illustrated with documents, letters, and photographs.

Works of History

108 minut izmenivshiye mir: vsya pravda o poleta Yuriya Gagarina, by Anton Pervushin (Moscow: Eksmo, 2011), 528 pages

English title: *108 Minutes that Changed the World: The Whole Truth About the Flight of Yuriy Gagarin*

This book by famous Russian space historian Anton Pervushin aims to set straight all the various myths and misconceptions about the flight of Yuriy Gagarin. Pervushin makes use of a variety of sources to carefully reconstruct the preparations and implementation of that historic mission.

Russian Publications (continued)

Yuriy Gagarin, by Lev Danilkin (Moscow: Molodaya gvardiya, 2011). 512 pages

English title: *Yuriy Gagarin*

This is probably the most important biography to be published about Gagarin. The author, a literary critic, has put together a well-written and well-researched book on Gagarin that also doubles as a cultural history of the Gagarin myth in Russian culture. While doing research for the book, the author talked to a vast number of people who came into contact with Gagarin, and thus is able to provide different perspectives on issues that had been mined by others (such as the infamous event in 1961 when Gagarin injured his brow). Danilkin adds a section in the book speculating on the possible future of Gagarin had he lived. This is clearly one of the most important books to be published on Gagarin in any language.

Multimedia

Yu. A. Gagarin: pervyy, CD-ROM, 2011

English title: *Yu. A. Gagarin: The First*

This CD-ROM was sponsored by the Ministry of Education and Science, the Federal Space Agency, and the State Public Scientific-Technical Library of Russia. It contains many documents, photographs, and memoir material on the life of Yuriy Gagarin. It's only compatible with Windows.

The History Program Office gives sincere thanks to Dr. Asif Siddiqi for compiling this list. Please note that these listings do not represent an endorsement by NASA.

Historic Preservation News

The Genesis of the X-15 at Langley Research Center

By Robert C. Moyer (Cultural Resources Intern) and Mary Gainer (Historic Preservation Officer)

On 9 March 1954, the National Advisory Committee for Aeronautics (NACA) Headquarters in Washington requested that the three NACA laboratories nationwide (Ames in California, Lewis in Ohio, and Langley in Virginia) as well as the High-Speed Flight Research Station at Edwards Air Force Base in California consider the research objectives and design requirements of "a new research airplane having higher speed and altitude capabilities than present types." All four NACA research facilities established ad hoc committees in response to this request, but the engineers at Langley Aeronautical Laboratory had a significant advantage over other NACA laboratories in the area of hypersonic research. Originally referred to only by the designation "Project 506," the Langley 11-inch hypersonic tunnel allowed research to be conducted at velocities up to Mach 6.86, verifying recently developed hypersonic theories and also revealing previously

The Langley 11-inch hypersonic tunnel and its founder, John V. Becker. Both Becker and the 11-inch tunnel would be instrumental in the development of the X-15.

unknown hypersonic airflow phenomena as shock-boundary-layer interaction. The tunnel gave Langley engineers a working knowledge and experience base that they applied to the request from NACA Headquarters.

The Langley group was composed of four engineers from different areas of specialization and was chaired by John V. Becker, who had launched the hypersonic research program at Langley in 1945 that led to the construction of the 11-inch tunnel. The group's primary objective was to explore the feasibility of a research aircraft capable of at least Mach 5 velocities and maximum altitudes "above the sensible atmosphere" where conventional aerodynamic control surfaces such as ailerons and rudders had virtually no airflow to deflect. In addition to the formal objectives established for the Becker group, Langley Associate Director Floyd L. Thompson pointed out that aircraft heating created by air friction at hypersonic speeds would be the largest problem to be overcome by the new design, and that Becker's aim should be to "seek fresh design approaches" but not to "overreach the advanced state of the art in materials, propulsion, launch techniques, etc." There was a good reason for this seeming contradiction. Thompson wanted the new aircraft to have "a procurement time on the order of 3 years," and suggested that Becker present his group's findings in just four weeks. Thompson's suggestion of haste was based in large part on the 10-year development period of the X-2, whose critics included Lockheed "Skunk Works" founder Kelly Johnson.

Historic Preservation News (continued)

This model was used in the Langley 11-inch hypersonic tunnel in July–October 1954 to refine the Becker group's concept and features the wedge-stabilizer developed by Charles McLellan.

The Becker group took Floyd L. Thompson's advice to heart. Skin panels made of Inconel X, a high-temperature alloy, and an internal shear web and truss structure would withstand skin temperatures up to 1,200°F, which would allow the new aircraft to reach speeds of Mach 6.3. The group also had to overcome a flight condition known as "inertia coupling" that reduced stability at speeds above Mach 2, a problem that was solved by Langley engineer Charles McLellan with a new wedge-shaped vertical stabilizer. For flight outside the atmosphere, control would be maintained by thrusters mounted in the wing tips and tail.

The Becker study group presented their findings to Floyd L. Thompson on 22 April 1954, just a little over a month after the original request for input from NACA Headquarters. The contents of the "Research Airplane Study" were incorporated into a report titled "NACA Views Concerning a New Research Airplane," which was presented at NACA Headquarters on 9 July 1954, to representatives from the Air Force and the Navy. Ultimately, the three parties would work together with North American Aviation to turn the Becker group's concept into the X-15, which exceeded Floyd L. Thompson's three-year procurement goal by only eight months. The X-15's operational history would span 10 years and 199 flights and would include a maximum speed of Mach 6.70 (4,520 miles per hour) and a maximum altitude of 354,200 feet. Many X-15 features such as RCS (reaction control system) thrusters and drag brakes for energy management during unpowered approaches and landings would later be adapted for the Space Shuttle.

Other Aerospace History News

National Air and Space Museum (NASM)

Compiled by Michael Neufeld

The National Air and Space Museum's Space History Division and the NASA History Program Office cosponsored a joint symposium titled "1961/1981: Key Moments in Human Spaceflight" on 26–27 April 2011 in Washington, DC. The symposium reflected on 50 years of human spaceflight using 1961 and 1981 as starting points for broader investigation and insight. Leading historians and social scientists addressed the rich history of human spaceflight that mark this important anniversary. Michael Neufeld, NASM Space History, and Stephen Garber, NASA History, will co-edit the collected work emerging from this symposium. It will not include all the papers, but rather will focus on the issue of images of spacefarers in the media and official propaganda, the subject of many of them.

The Space History Division and the National Air and Space Society co-organized the evening lecture, "To the Moon: The Speech that Launched Apollo," held at the NASM Steven F. Udvar-Hazy Center, in Chantilly, Virginia, on 25 May 2011. This event commemorated the 50th anniversary of the speech by John F. Kennedy announcing the commitment to land an American on the Moon "before this decade is out." Speakers included John Logsdon, author of *John F. Kennedy and the Race to the Moon* (2011), and Gene Cernan, commander of Apollo 17. Roger Launius of Space History moderated the evening.

On 22 June, former Senator John H. Glenn and Commander M. Scott Carpenter, the two surviving Mercury astronauts, appeared together at the NASM as the featured speakers for the museum's John H. Glenn Lecture in Space History. In front of a capacity crowd, with additional viewers watching from overflow seating and over 500 people following along online, Glenn and Carpenter regaled the audience with stories about the testing and training they received as Project Mercury astronauts. From dizzying turns on the MASTIF (Multiple Axis Space Test Inertia Facility) to gut-wrenching spins in the Johnsville Centrifuge, Glenn and Carpenter used historic images to remind the audience of the rigorous training they underwent. Margaret Weitekamp of the Space History Division moderated the discussion.

David DeVorkin, Space History, gave a paper, "Gaining Authority for the High Atmosphere," at the 13th Annual Gordon Cain Conference "Chemical Weather and Chemical Climate" in Philadelphia, Pennsylvania, on 1 April. On 9 and 10 May, DeVorkin, Michael Neufeld, and Andrew Johnston, of the NASM's Center for Earth and Planetary Studies, participated in a workshop held at the historic Mount Stromlo Observatory outside Canberra, Australia, to discuss the creation of a National Space and Astronomy Museum for Australia at the observatory site. On 11 May, Neufeld lectured on the *Smithsonian National Air and Space Museum: An Autobiography* book at the Powerhouse Museum in Sydney. He had earlier delivered the same lecture at the Lakeview Museum in Peoria, Illinois, and the Littleton Museum in Littleton,

Other Aerospace History News (continued)

Colorado, in March and April, and he presented it again on 1 July at the NASM for the 35th anniversary of the National Mall building. On 9 July, David Devorkin participated on the panel about "NSF Support for the History of Astronomy" at the 10th Biannual Workshop on the History of Astronomy at the University of Notre Dame.

A new book (in collaboration with Ilya Grinberg) by Von Hardesty, Aeronautics Division, titled *Red Phoenix Rising: The Soviet Air Force in World War II* is now in press with the University Press of Kansas for their Modern War Studies series. This book is a substantial revision and augmentation of Hardesty's 1982 study, taking into account the varied archival sources made available since 1991. A new final chapter takes the story into the immediate postwar era showing how the Soviets adapted to jet engine technology and forged a new strategic air arm. *Red Phoenix Rising* will appear next March.

Three members of the NASM staff presented papers at the 38th annual International Committee for the History of Technology (ICOHTEC) meeting at the University of Glasgow, Scotland, held from 2–7 August. The conference theme, "Consumer Choice and Technology," was explored in the aviation and space history context by aeronautics curator Jeremy Kinney, who gave his paper "Racing on Runways: The Strategic Air Command and Sports Car Racing in the 1950s,"; by Aeronautics curator Russ Lee, who presented "How Uncle Sam Saved the Ultralight Aircraft Movement,"; and by Space History museum specialist Jennifer Levasseur, who spoke about "NASA and Hasselblad: Consumer Choice and Technological Changes for Human Spaceflight."

Upcoming Meetings

The NASA History Program Office will hold the History Program Review from **1–3 November 2011** at Glenn Research Center in Cleveland, Ohio. For more information, please contact Nadine Andreassen at *nadine.j.andreassen@nasa.gov*.

The annual meetings for the Society for the History of Technology, History of Science Society, and the Society for the Social Studies of Science will be held **3–6 November 2011** in Cleveland, Ohio. Please see the following sites *http://www.historyoftechnology.org/annual_meeting.html*, *http://www.hssonline.org/Meeting/*, and *http://www.4sonline.org/meeting* for more details.

The Sixth Eilene M. Galloway Symposium on Critical Issues in Space Law will be held **1 December 2011** at the Cosmos Club in Washington, DC. Please contact *spacelaw@olemiss.edu* for more details.

The fall meeting of the American Geophysical Union will be held **5–9 December 2011** in San Francisco, California. Please see *http://sites.agu.org/fallmeeting/* for more details.

The annual meeting of the American Historical Association will be held **5–8 January 2012** in Chicago, Illinois. Please see *http://www.historians.org/annual/next.htm* for more details.

The 219th meeting for the American Astronomical Society will be held **8–12 January 2012** in Austin, Texas. Please see *http://aas.org/meetings* for more details.

The midwinter meeting of the American Library Association will be held **20–24 January 2012** in Dallas, Texas. Please see the Web site *http://www.ala.org/ala/conferencesevents/upcoming/index.cfm* for more details.

The 18th Annual Space Exploration Educators Conference will take place on **2–4 February 2012** at the Space Center Houston in Houston, Texas. Please see *http://www.spacecenter.org/TeachersSEEC.html* for more details.

The 43rd Lunar and Planetary Science Conference (LPSC 2011) will be held in conjunction with the Nuclear and Emerging Technologies for Space meeting on **19–23 March 2012** in The Woodlands, Texas. Please see *http://anstd.ans.org/NETS2012/NETS2012Home.html* for more details.

The annual meeting for the Organization of American Historians will be held **19–22 April 2012** in Milwaukee, Wisconsin. Please see *http://annualmeeting.oah.org/* for more details.

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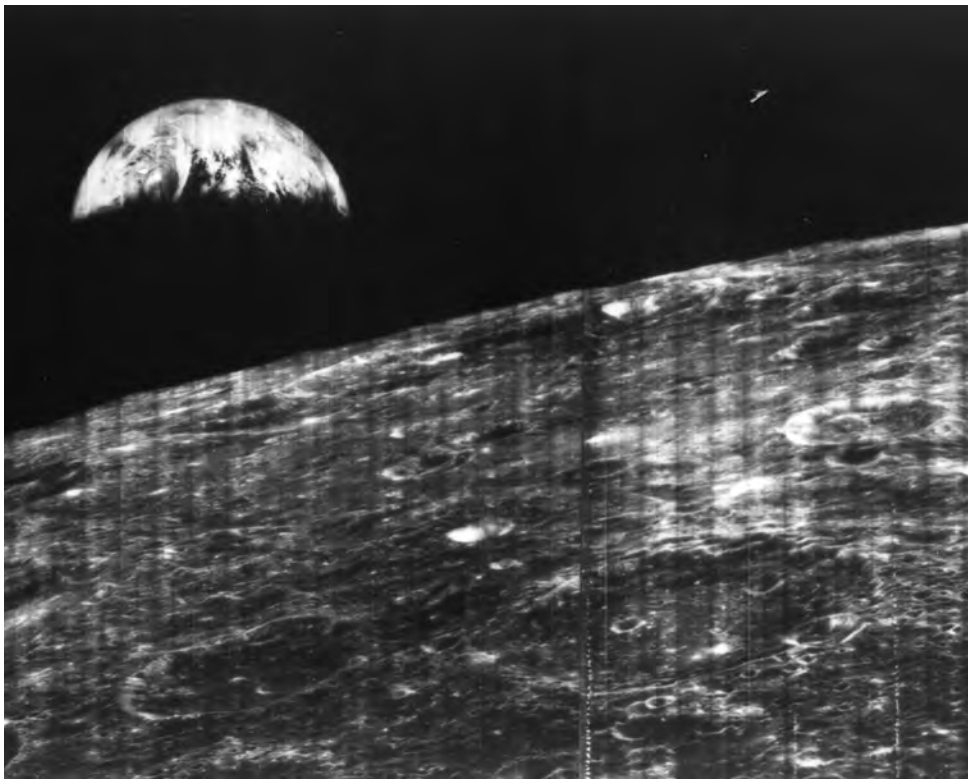

On 23 August 1966, Lunar Orbiter I took the world's first view of Earth from the vicinity of the Moon. (*http://grin.hq.nasa.gov/ABSTRACTS/GPN-2000-001588.html*)

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