News & Notes

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From the Chief Historian

The recent flight of Space Shuttle Discovery, the ongoing debate over Hubble Space Telescope servicing, and the general activities of space programs around the world demonstrate that the concept of risk and exploration is an issue that will not go away. The publication in the NASA history series of *Risk and Exploration: Earth, Sea, and the Stars* (NASA SP-2005-4701) prompts me to reflect again on a subject that history starkly illuminates and that I believe is of great importance for NASA. It points to three conclusions: 1) Exploration is necessary for a creative society; 2) Exploration requires clear goals, despite its open-ended nature; and 3) Risk is the inevitable companion of exploration.

There are some timid souls who will never get past the first point. John Chatterton, who risked his life to discover the German submarine U-869 at a depth of 230 feet off the New Jersey coast, spoke for many in the volume when he asked, "Why go through all this? It has to do with challenge. It has to do with perseverance. It has to do with who we are, not just as individuals, but, really, as a culture. Exploration is very much who we are, and we really have two choices. We either continue on a path of exploration, or we quit." Chatterton and his colleagues did not quit, and solved a World War II mystery. Their adventures were subsequently described in the book *Shadow Divers*. This is only one of many adventures in exploration described in a book authored by explorers of Earth, sea, and space.

Jack Stuster, author of *Bold Endeavors: Lessons from Polar and Space Exploration*, quoted Norwegian scientist and explorer Fridtjof Nansen as saying, "The history of the human race is a continual struggle from darkness toward light. It is therefore to no purpose to discuss the use of

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NACA Reunion Oral History Project

-Report from Johnson Space Center

Before NASA there was NACA—the National Advisory Committee for Aeronautics. Started in 1915, the original focus of NACA stated by the federal government was for the advisory panel of 12 people "to supervise and direct the scientific study of the problems of flight, with a view to their practical solutions." A few years after its inception, the committee became an organization with a more broadened purpose. During the next 43 years, the work of NACA members impacted aircraft developed for wars, commercial travel, and journeys beyond the Earth's atmosphere.

However, with the birth of the nation's space agency, NACA faded gently at the four facilities where it had thrived and was dissolved officially on 1 October 1958. At the Langley, Ames, and Lewis Research Centers, as well as the High Speed Flight Station (Edwards AFB, CA), NACA members transitioned quietly to the new organization, NASA. They took their experience, their knowledge, their passion, and the traditions gained from working at NACA and used these as a foundation to forge the future achievements in American aviation.

Earlier this fall, members of NACA gathered for the 11th time for a reunion to reacquaint and reminisce. The attendees, most now in their upper 80s, came together in San Jose, CA, for a three-day weekend of activities and to visit with former colleagues and longtime friends. More than 300 people enjoyed the event, organized by NACA members from the Ames Research Center. Tours to a number of local sites were offered, as well as numerous opportunities to relax and share memories with others.

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In This Issue:

NACA Reunion XI

The 11th reunion of former NACA employees (hosted by the Ames Research Center) was held in San Jose, California, on 30 September, 1–2 October 2005. The 320 participants coming from 17 states and the District of Columbia, and ranging from about 70 to beyond 90 years of age, represented all former NACA installations. Attendees participated in one or more of the eight group events, including three meal functions and five tours. Group meals included a buffet dinner, a gala banquet, and a Sunday morning brunch. Tours included the Ames Research Center, Cooper-Garrod Estate Vineyards, the city of San Francisco, Hiller Aviation Museum, and the Computer History Museum. A large, poolside hospitality room, open from dawn to dusk, provided a venue for never-ending reminiscing about the "good old days" in the "best of all government organizations." Three historians from the Johnson Space Center (JSC) History Office (Rebecca Wright, Jennifer Ross-Nazzal, and Sandra Johnson) contacted and interviewed several NACA reunion participants as part of an oral history project for the NASA Headquarters History Division.

Serendipitously, the great grandniece of brothers Orville and Wilbur Wright, Janette Davis Yoerg, was staying at the reunion hotel on the night of the buffet dinner and noticed the NACA gathering. Needless to say, she was invited to dinner and gave the event a very special flavor. The current Ames Center Director, Scott Hubbard, and his wife, attended the banquet as special guests. He gave welcoming remarks, a brief summary of future directions for the Center, and introduced a well-received movie commemorating the 65th anniversary that Ames celebrated last year. Participants were asked to provide written feedback. While not all input has yet been analyzed, the overwhelming consensus is that the event was a resounding success. NACA clearly left its imprint on the minds of those who were fortunate enough to have played a role in that part of aerospace history.

Highlights of all reunion activities were captured in digital photos that will be included in a memory album to be published later and distributed to attendees. The NACA alumni group currently boasts about 2,500 members. Tentative plans call for the next reunion to be hosted by the Langley Research Center in 2007. The group's final activity will occur the following year to commemorate the 50th anniversary of NASA and the end of NACA.

Wallops Island—60 Years of Exploration

By Keith Koehler

As the Sun slowly rises, a light fog begins to dissipate and sea gulls can be heard overhead. The ocean breaks along the beach. A light breeze dances across the sand. The morning begins on Virginia's barrier island formerly called Keeckotank, Accocomoson, and Occocomoson.

Further down on the island, crews that have been at work since 2:00 a.m. go through the final steps to prepare a rocket for launch, just as they and others have done for the past 60 years—another day begins at America's oldest continuous rocket range: Wallops Island.

Since 1945, NASA's Wallops Flight Facility has launched more than 15,000 rockets from Wallops Island for science studies, technology development, and as targets for the U.S. military.

The first research rocket launched from Wallops Island was Tiamat on 4 July 1945.

Wallops roots are based on this country's need for missile research during World War II. The Langley Aeronautical Laboratory in Hampton, Virginia, was tasked with supporting this research. A place was needed on the water, near Langley and near a military facility. Wallops Island fit the bill. The first test rocket was launched on 27 June 1945. The first research rocket, a Tiamat, was launched several days later on 4 July.

After being established at Wallops, the focus of the Pilotless Aircraft Research Station was expanded to include studying airplane designs at supersonic flight and gathering information on flight at hypersonic speeds. These tests included aircraft and missile designs from a variety of organizations and corporations including Douglas, McDonnell, Boeing, North American, Lockheed, and Grumman.

Crews prepare a Little Joe rocket for launch from Wallops Island. The Little Joe project tested escape systems for the Mercury capsule and biomedical conditions during rocket flight in the early 1960s.

With the establishment of NASA in 1958, Wallops' role in the new space agency changed and it was renamed Wallops Station. The station expanded in 1959 to include the Chincoteague Naval Air Station, which now is known as the Wallops Main Base.

Wallops played a key role in the development of the Mercury space capsule, the first step in the U.S. human space program. The basic design of the capsule and the escape system were tested at Wallops. In addition, the development of the SCOUT rocket was conducted at Wallops and the facility saw its first launch of a satellite into Earth orbit in 1964.

The purpose of rocket launchings at Wallops became more focused on supporting science experiments of Earth's atmosphere and space. In addition, Wallops began to support science studies in countries throughout the world. One project included the launching of rockets from the deck of a ship off the coast of Ecuador.

In the 1970s, Wallops expanded its research role as it became a NASA Center and was renamed Wallops Flight Center. Aircraft began to be used as flying science platforms, conducting missions worldwide. Wallops played a key role in the development of using instruments for use on satellites to measure sea topography. Today, these instruments provide critical information on ocean phenomena such as El Nino.

A NASA scientific balloon is launched in McMurdo, Antarctica. About 25 scientific balloons are flown annually from sites around the world.

In 1981, Wallops became a part of the NASA Goddard Space Flight Center and was renamed the Wallops Flight Facility. This change brought additional mission responsibilities, including the management of the scientific balloon program.

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Wallops Island (continued)

Today, the exploration efforts at Wallops are based on its 60 years of experience in conducting research using rockets, scientific balloons, and aircraft. Sounding rockets continue to carry science instruments conducting space and Earth systems research. They also are being used to support rocket technology development, including testing of new, innovative rocket systems to improve safety and reliability and to reduce costs of spaceflight.

A Black Brant XII sounding rocket takes flight from Wallops Island. The four-stage rocket can fly to altitudes higher than 800 miles.

Research is being conducted to expand the use of scientific balloons on Earth and other planets. NASA is working to develop balloon systems to expand the current flight duration from a few hours and weeks to more than 100 days. Also, balloons are being explored to carry science instruments on planets such as Mars and Venus.

Aircraft research is expanding from traditional airplanes to include uninhabited aerial vehicles (UAVs), similar to those that have been used to support the military.

Wallops scientists study the interaction among the oceans, atmosphere, and land. This includes researching the effect of global climate change on the world's ice sheets, providing accurate measurements of the topography of the oceans and land and developing systems to measure ocean microscopic plants and the role these plants have in the global carbon cycle.

The facility provides unique capabilities for students in kindergarten through university level to receive hands-on experience in engineering and science. Thousands of students in the United States participate in programs to design and fly experiments and support systems on NASA flight vehicles annually.

For the past 60 years, NASA's Wallops Flight Facility has applied its unique capabilities and facilities to expanding our knowledge of flight, Earth, and the universe. The facility is poised to support a new era of discovery as the Agency embarks on the Vision for Space Exploration.

For information about Wallops on the Internet, visit: *http://www.wff.nasa.gov.*

From the Chief Historian (continued)

knowledge. Man wants to know, and when he ceases to do so, he is no longer man." There are those who think that is sentimental rubbish; they, of course, will never to be convinced that humans should go to Mars. They should be reminded that cost-benefit analysis isn't everything in life, either now or throughout history.

For those who do agree that exploration is important, the second point (clear goals) is no less essential. Steve Squyres, the Mars Exploration Rover principal investigator, addressed this subject: "We had a set of level-one requirements. They were negotiated with NASA Headquarters. They fit on a single piece of paper—two sides. They stated succinctly and clearly what the MER mission was expected to do . . . We would not have made it had we not all had a clear, unambiguous, common understanding of what it was we were trying to accomplish. Those level-one requirements were our guide star." Squyres spoke of the

many risks the Mars Rover program had to overcome, including those involving costs, technology, environment, operations, and schedule. Overcome they were: Spirit and Opportunity are still roving the Martian surface, well past their projected lifetimes.

T. K. Mattingly, a veteran astronaut who flew Apollo 16 and two Shuttle flights, put it this way: "Number one, you have to have a clear, quantifiable, simple-to-understand objective. Step one. If you don't fill that square in, don't worry about the rest of them, because they don't matter." These are lessons not only for the current and future space program, but also for a wide range of endeavors. Apollo 17 veteran Harrison "Jack" Schmitt added that for long-term programs such as the Moon-Mars program now being embarked upon, motivating objectives no more than 10 years apart are necessary.

And finally to the third point: risk. Some of the explorers of Earth, sea, and space pointed to the risks of everyday life and noted that the most dangerous thing they ever do is get in a car and go at a moderate rate of speed facing oncoming traffic separated only by a painted line. Why, some wondered, do we accept thousands of deaths on the roads annually and then call for an end to the human space program when several dozen astronauts die over a period of 40 years?

Some authors worried that NASA as an institution and the United States as a society are becoming too averse to risk. Apollo 13 astronaut Jim Lovell recalled the race to the Moon. While the Soviets hesitated, and less than two years after the fatal fire in which three astronauts were killed in their Apollo capsule while still on the ground in 1968, the bold decision was made to send Apollo 8 around the Moon for the first time. Lovell said, "So here was a case where we analyzed the risk and we thought that the reward—the achievement and the ability to continue the Apollo program for landing—was well worth it." Seven months later we landed on the Moon. Was that any less a risk than those we take today with the Space Shuttle, or contemplate taking on the way to Mars?

Putting it bluntly, writer-director and undersea explorer James Cameron, who made 12 submersible dives to the *Titanic* in preparation for his feature film of the same name, stated startlingly, "Safety is not the most important thing. I know this sounds like heresy, but it is a truth that must be embraced in order to do exploration. The most important thing is to actually go." Elaborating on Gene Kranz's lessons in his book *Failure is Not an Option*, Cameron concluded, "You have to balance the yin and yang of caution and boldness, risk aversion and risk taking, fear and fearlessness. No great accomplishment takes place, whether it be a movie or a deep ocean expedition or a space mission, without a kind of dynamic equipoise between the two. Luck is not a factor. Hope is not a strategy. Fear is not an option."

We must do everything we can to mitigate risk in human spaceflight and to fix problems that have resulted in disaster. Sometimes there are shortcomings at NASA and its contractors. But the American people need to know that space exploration will never be risk-free. Astronauts, men and women alike, are willing to take those risks. In the end, the important thing is to go. In the end, it is what great nations do. History, it may be argued, bears out that judgment, and history will be the judge of what we do now—or what we fail to do.

Steve Dick

NACA Reunion Oral History Project (continued)

In an effort to capture some of these memories and first-hand experiences from this group, Dr. Steve Dick, NASA's Chief Historian, commissioned an oral history project to be conducted during the reunion. Taking on the task was the staff of the NASA Johnson Space Center (JSC) History Office, which has facilitated other projects for the NASA Headquarters History Office and has conducted an ongoing oral history effort for the Houston Center.

As they discussed the facets of their upcoming project, JSC History staff members Rebecca Wright, Sandra Johnson, and Dr. Jennifer Ross-Nazzal knew they could face a quandary in trying to accomplish the goal of reaching as many people as possible.

"We quickly realized the opportunity to interview would be much greater than the budget and time allowed," said Rebecca Wright, JSC History Coordinator. "After reviewing all the information available during the preparation phase, it was obvious that only a limited number of one-on-one interviews could be scheduled, so we devised a plan for a 'written' oral history project and proposed it to the Chief Historian."

This plan consisted of mailing a packet to the entire list of registered reunion attendees. Enclosed would be a letter of introduction and requests to complete a biographical information sheet and to provide written answers to a page of general questions. The packet included a release form allowing NASA to use the submitted information.

"When we pitched the idea to Steve Dick, I mentioned that we may get 10 replies or none, but if we got one, it would be one more piece of information we didn't have about this time period and the people who made it a success," said Rebecca.

The Chief Historian agreed. One hundred seventy-eight packets were generated and mailed, and within a week of their send-off, response envelopes began arriving at the Houston History Office.

Some replies have been brief, others extensive, and a few have included photos or other materials to be placed in the NASA Archives. At the reunion, more than 20 people hand delivered their information to the staff members, with many of them adding thanks for the opportunity to share details about their years with NACA.

"The response to this written oral history has been pleasantly surprising," said Rebecca. "More than 40 have been received so far, with a number of others promised to be sent in soon."

The JSC History staff also gathered 13 recorded oral histories at the reunion. These interviews were with individuals representing the four NACA facilities and its headquarters, giving the project a reflection of contributions and projects from each of the Centers.

"We focused the questions on the day-to-day activities during their years with NACA, asking for details about the tools, methods, and projects they were involved with. We also asked them to share their thoughts about the impact of the transition to NASA to their jobs and to their careers," said Rebecca. "Many similar themes emerged, but as in all oral histories, specific individual stories provided an insight that can only be given by that individual.

"We also heard from them the pride in knowing that the NACA legacy survives," she added. "They believe NACA's research techniques, the improbable theories, and versatile methodologies introduced decades ago continue to serve as a foundation for many of the successes in modern aviation and aerospace technology." The JSC History Office continues to accept submissions to the NACA Oral History Project until 1 December 2005. After the collection has been finalized, the information gathered will be archived in the NASA Headquarters History Division. Those interested in obtaining additional information about this project should call 281-990-0007.

NEWS FROM HEADQUARTERS AND THE CENTERS

Headquarters

Nadine Andreassen traveled to Wallops Flight Facility to celebrate its 60th anniversary on 1 October 2005. She distributed history publications at the event and enjoyed the salty breezes on Chincoteague Island. Nadine will attend the Society for the Historian of Technology and History of Science Society joint conference in early November. In addition, she has been preparing for the upcoming Critical Issues in Aeronautics and Societal Impact conferences for next year.

Glen Asner and Steve Garber continued to work on their study of NASA's Decadal Planning Team. Steve and Glen conducted interviews with key team members and completed three draft chapters. Glen also helped to move several manuscripts closer to publication, including the *Aeronautics and Space Report of the President* and John Hunley's history of space launch vehicles. He is delighted to announce the publication of Mark Bowles and Virginia Dawson's *Realizing the Dream of Flight* (SP-2005-4112).

Giny Cheong bids a fond farewell to the job of editing this newsletter and the happy NASA History Division family. She moves to the new Office of Program Analysis and Evaluation, Studies and Analysis Division. Meanwhile, she organized a table of publications at the successful 8th Annual Military Applications and Programmable Logic Devices (MAPLD) conference, helped send the second volume of the *Wind and Beyond* to editing, and will finish the *Research in NASA History* update.

Jennifer Chu is a senior at the University of California at Davis, majoring in political science and communication. She is helping update the Great Images in NASA database, as well as assisting in the preparation for the publication of Volume 2 of Boris Chertok's memoirs, *Rockets and People*.

Colin Fries finished processing the Headquarters Office document and is now working on a collection of X-vehicle material. The new collection consists of approximately 25 cubic feet of material that contains mainly X-33 and X-34 documents gathered by Tony Springer when he was at the Marshall Space Flight Center.

John Hargenrader continued to scan NASA's *Current News* for 1979 and finished reorganizing a collection of boxed materials used by Mae Mills Link. The collection contains materials contributing to her research and writing of *Space Medicine in Project Mercury*, as well as articles and speeches presented to various professional organizations. As time allows, he also continued to reformat old newspaper clippings in the human spaceflight program files.

Jane Odom continues to acquire and appraise new material for the Historical Reference Collection. Recently, she appraised materials dealing with life sciences, space station, X-vehicle development, and the early legislative history of the Agency. Jane is currently

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News from Headquarters and the Centers (continued)

appraising a small collection of Space Station Freedom files dated from 1989 to1993. In addition, the activities of the archival standards workgroup are ongoing. Jane, Nora Blackman, Leilani Marshall, and Elaine Liston are studying archival practices and procedures Agency-wide and have just sent out questions to all Centers examining the area of preservation. A final report will be issued this autumn.

Steve Garber and Glen Asner will give a presentation on their Decadal Planning Team research at the National Air and Space Museum on 17 November. Steve bids a fond farewell to Giny Cheong, who is moving on to a new job at NASA, and welcomes aboard fall interns Jennifer Chu and Gabriel Okolski. Steve has been working with these interns on bringing several manuscripts forward to publication, including a history of the Galileo spacecraft, Volume 2 of the *Wind and Beyond* aerodynamics documentary history series, Volume 2 of Boris Chertok's memoir *Rockets and People*, and Mark Bowles' book-length history of the Plum Brook reactor facility. Steve is also working with contract authors on two new projects: an updated history of some of NASA's spacecraft tracking facilities and a detailed etymological "dictionary of the space age."

Ames Research Center

The NASA Ames History Office Policy Manual

The NASA Ames History Office's policy manual, entitled "Policy and Procedure Manual: Management of the NASA Ames History Office Historical Collections," was written in order to provide direction and guidance to the History Office staff on all areas of archival policy that the staff deals with on a daily basis. These areas include appraisal, acquisition, processing, description, storage, and access. The manual has been reviewed for accuracy, comprehensiveness, and clarity by the NASA Ames History Office staff and is currently being implemented in the History Office. It is also being updated as required, such as when the staff determines more information about a particular issue is needed; when a new form is established; or when new regulations, such as those related to records management, need to be addressed.

What's In It?

The manual is divided into three parts: administration of the History Office, processing guidelines and procedures, and appendices. The first part, administration, is further broken down into three subsections: administrative policies and procedures, which addresses issues such as appraisal, acquisition, accession, and deaccession policies and procedures, and includes forms for each activity; collection processing and description policies, which sets policies and provides instruction on developing the History Office databases, cataloging practices and fields, and separation policies and practices for materials that are removed from collections and located elsewhere; and access policies and regulations, which sets policies for access to the History Office collections and reading room regulations and also provides forms that help the History Office staff to keep statistics on researchers and their requests.

The second part of the manual, processing procedures and guidelines, is further broken down into three subsections: an introduction, which provides an overview of the collections

in the History Office of such fundamental principles of archives as provenance and original order, and of the stages of processing; processing guidelines, which provides guidance and direction to processors on surveying materials and establishing both intellectual and physical control over collections; and descriptive tools, which provides instruction on writing finding aids, updating the History Office databases, using Encoded Archival Description (EAD) to encode finding aids for the Internet, and using Machine Readable Cataloging (MARC) to catalog the processed collections.

The third part of the manual, appendices, includes helpful information for processing the collections. One section of the appendices includes a copy of every form used by the History Office to track and maintain control over the collections. Other appendices include a processing flow chart that provides the overall picture of processing activities; a copy of "Functional Categories of Records Grouped by Relative Importance," taken from Maynard J. Brichford's *Archives & Manuscripts: Appraisal and Accessioning*; a selective glossary of approximately 50 terms commonly used in the archival community and also used throughout the manual; and a "table of equivalents" to help processors determine the size of collections.

Anyone Need a Copy?

We are pleased to offer copies of this manual to any of the other NASA Center History Offices that feel it would be a useful tool. The manual can be provided in PDF format, which will make it easy to send via email. If anyone does use it, or parts of it, we would appreciate any comments on, or observations of, its use as well as its usefulness.

Dryden Flight Research Center

Mike Gorn, Chief Historian at NASA's Dryden Flight Research Center (DFRC), recently published an article in Virginia Dawson and Mark Bowles, eds., *Realizing the Dream of Flight: Biographical Essays in Honor of the Centennial of Flight* (NASA SP-2005-4112). The article is titled "Who was Hugh Dryden and Why Should We Care?" It originated as a paper presented at a centennial of flight conference held at the Realizing the Dream of Flight symposium at the Cleveland Science Center in November 2003.

Christian Gelzer, Deputy Historian, recently revamped the Visitors Center at the DFRC. The exhibit area showcases the Center's history over the last 60 years with artifacts, photographs, and several mannequins wearing flight suits from the 1940s through the 1980s. He is also working on a monograph about the aerodynamic research on truck fairings done at Dryden that led to the shapes of most long-haul trucks today.

Peter Merlin, Archivist, continues composing captions for a pictorial history of the Center, a book with nearly 250 photographs in it. He cataloged new material for the collection, including items from Dick Day, one of the early engineers that came west to work on the Bell X-1 in the late 1940s. Merlin also began research for a project that examines NASA's contributions to the commercial airline industry.

Curtis Peebles, Oral Historian, continues working on a monograph on the history of the X-43, the first hypersonic scramjet-powered vehicle to successfully generate positive

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thrust during its ever-so-brief flight (11 seconds at Mach 7). He finished editing volume 2 of a series entitled *The Early Years*. This volume contains interviews covering the 1960s, a period at Dryden when the X-15s, the lifting bodies, and the Lunar Landing Research Vehicle (LLRV) flew over Rogers Dry Lake.

Glenn Research Center

The NASA Glenn Research Center (GRC) History Office enjoyed another productive and successful summer and is looking forward to the new projects and challenges that lay ahead this fall.

On 17 September, Anne Power presented a lecture as part of the GRC Visitor Center "3rd Saturday Programs" entitled "NASA: The Journey to Cleveland, Ohio." The presentation told the story of how Cleveland won the competition for a NACA Center in 1941 and included many early photos. In November, the lecture will be given again as part of the GRC Technical Library's quarterly "Lunch and Learn" series, and in the future may be included in the Center's Speakers Bureau catalog. The History Office continues to build its partnership with the GRC Visitor Center through collaboration on weekend programming. In November, a program highlighting NASA art through the years will feature many original art works from our archival collection. The History team is also helping with the planning stages of next year's Visitor Center events—including a possible celebration of the 25th anniversary of the Shuttle program.

Archivist Bob Arrighi of RS Information Systems is working to document the Altitude Wind Tunnel and the Propulsion Systems Laboratory—two historically significant facilities at the Center that are slated for demolition. The documentation will include interviews with retirees, digitization of photographs and films, and a complete review of documents associated with the facilities. The conclusion of this project may include another special publication in the NASA History Series or a Web site.

Mark Bowles, History Enterprises, has been awarded the American Institute of Aeronastics and Astronautics 2005 History Manuscript Award for his book *Science in Flux: NASA's Nuclear Program at Plum Brook Station, 1955–2005*. The book is expected to be released in spring of 2006. Mark and Dr. Virginia Dawson were honored with this award last year for their work *Taming Liquid Hydrogen: The Centaur Upper Stage Rocket, 1958–2002.*

The GRC History Program may soon have a new place to call home. After enduring many floods and leaks in our basement location, a new proposal has the archives moving to a space once used to house mainframe computers. The space is temperature- and humidity-controlled and will allow us more space for research, processing, and possibly a small exhibit area. The move should take place by late 2007.

Goddard Space Flight Center

The Goddard Library staff has been working on yet another Web site revision that resembles the NASA ONE portal. During their annual Library Open House on 6 October 2005, the staff planned to unveil and demonstrate the new Web site. Jane Riddle compiled historical information about Homer Edward Newell to weave into the current pages and

narratives. The Web site's content will comprise links to other sites, images, videos, and documents from all of the Goddard directorates.

In addition to the Open House, the library successfully hosted several other special events and projects. The Goddard Library hosted an outreach event "Beyond Einstein," to celebrate the 2005 World Year of Physics. The library continues to support the Landsat Legacy Project in creating metadata for its documentation for digital preservation. Also, the Goddard and Wallops libraries collaborated to showcase NASA's comprehensive Balloon Science database.

Jet Propulsion Laboratory

By Erik M. Conway

The primary news from the Jet Propulsion Laboratory (JPL) for the month has been Chief Archivist Michael Q. Hooks' departure from the lab. The JPL budget is expected to shrink by five to eight percent in FY 2006. This expectation has led to significant layoffs and reorganization, and Mike was one of the casualties. His Archives Group is being merged with the JPL Library Group. Kay Schardein will remain on as Records Manager and Julie Cooper will continue as the lab's sole Archivist. Others in the library, archives, and records sections will also support archival activities.

Mike's departure is a significant loss for the lab. Not only did he oversee the creation of the JPL Archives when he came to the lab 17 years ago, he also assisted me. He made my transition here during the past year much easier, and he is a friend. I'll miss him.

In happier news, the JPL Library and the Archives collaborated to complete the "Level 1" and "Level 2" processing tiers for our collections. There is at least basic descriptive information on all of our archival collections in our database, facilitating access to them. One change resulting from our recent downsizing is that we have prioritized flight project records over administrative records and we have stopped the "Level 3" processing of directors' office records. Our efforts currently are focused on Mars Pathfinder records.

During the month of September, I received a generous gift of oral histories from Peter Westwick, who has spent the last several years writing a history of JPL modeled on Clayton Koppes'. He has completed the manuscript, which will be published by Yale University Press in 2006. He transferred to me nearly all of the oral histories he did for the book—some transcribed, many not. I intend to edit the transcripts and transcribe the other histories that have yet to be transcribed in my copious "free time" over the next year. I carried out a number of oral histories of my own during the last few weeks, including B. Gentry Lee, our Chief Engineer for solar system exploration, and Glenn Cunningham, who was Project Manager for Mars Observer and Mars Global Surveyor.

Mike Hooks also completed the first round of oral histories with three of the top managers of the Mars Science Laboratory (MSL) project. Those interviewed were Richard Cook, Project Manager; Charles Whetsel, Project Systems Engineer; and Matt Wallace, Flight Systems Manager. The interviews were in an effort to document on an annual basis the evolution of MSL rather than waiting until the end of the project. The mission of MSL,

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which is scheduled for launch to Mars in 2009, is to collect soil samples and rock cores and analyze them for organic compounds and environmental conditions that could have supported microbial life now or in the past.

During August and September, I had an “academic part-time” student working for me. During her short time here, she researched and wrote for me a “white-paper” style history of the Deep Space 1 project that operated from 1994 to 2001 and demonstrated ion propulsion and continuous-thrust navigation capabilities for use by future space missions. She returned to Cal State Long Beach at the end of September to complete a master's degree.

Putting on my “other hat” as a NASA contract historian, I'm still awaiting peer reviews of my manuscript, *History of Atmospheric Science at NASA*. Due to their nonarrival, I requested in late August a contract extension to 12 November 2005. This also hasn't arrived, but I'm assuming it will eventually be approved and have planned to complete the work by that date. I've carried out oral histories with GSFC's Vince Salomonsen and with Edward A. Frieman to help improve the text, and I have one more oral history scheduled, with Cloudsat Principal Investigator Graeme Stevens, on 13 October.

Johnson Space Center

The NASA Johnson Space Center (JSC) History Office was contacted recently by Rick Stoddard of C-SPAN Radio with a request for audio oral histories for the *American Political Archive* show. Previously, nine JSC Oral History Project (OHP) interviews have been broadcast and are currently available on the C-SPAN Web site: *http://www.c-span.org/apa/nasa.asp?CatCodePairs=Current_events,NASA*.

"C-SPAN, generally, takes a 'fly on the wall' approach to our programming,” said Stoddard. “For the most part, it's long-form beginning-to-end programming; and when and where we do edit, we do our best to maintain the speaker's original intent. It's rare, if never, that you'll hear a 10-second sound bite on C-SPAN TV or Radio. We do some editing, but only to pare down interviews of several sessions, or to remove parts of the interviews deemed too 'inside baseball' for the 'general audience.'"

Sandra Johnson, Production Coordinator for the JSC History Office, said C-SPAN is able to air the JSC OHP interviews on their radio broadcast because of the "broadcast-quality" digital equipment and techniques that are used by the team when recording oral histories for their history projects. Based on her conversations with Stoddard, interviews expected to air in the near future on C-Span Radio include those with Shuttle astronauts Jerry Ross, Rick Hauck, Charlie Bolden, and Charlie Walker.

Also this past summer, the JSC History team prepared for the threat of Hurricane Rita. After interview source tapes were moved to a vault at Johnson Space Center, the team secured the History Office and resource materials, then evacuated. Fortunately, the storm missed the immediate Houston area.

Kennedy Space Center

The Archives produced a catalog identifying Kennedy Space Center's (KSC) historic properties listed on the National Register of Historic Places. This brochure includes his-

toric buildings located within the industrial area such as Headquarters and the Operations & Checkout Building. Included among the 39 Launch Complex facilities are the Vehicle Assembly Building, Launch Control Center, both launch pads, and Crawler Transporters. All KSC properties listed in the brochure were originally constructed to support NASA's Apollo lunar landing program and were designated "historic" because of their important association with that effort. The properties were converted and refurbished in the mid-1970s to support the Space Shuttle program and continue to be utilized today. The brochure is available online at: *http://www.lib.ksc.nasa.gov/lib/archives_electronic.html*.

Langley Research Center

Gail Langevin reports that Langley looks forward to the publication of *Innovation in Flight: Research of the NASA Langley Research Center on Revolutionary Advanced Concepts for Aeronautics* by Joseph R. Chambers. *Innovation in Flight* addresses the topic of revolutionary research by the Langley Research Center (LRC) in aeronautics and the challenges and barriers faced in maturing advanced concepts to the point of application by the aeronautics community. Ten selected examples of potentially break-through research concepts that have not yet been applied are discussed, including the benefits of each concept, the unique challenges and barriers to application for that concept, in-depth reviews of activities by Langley and its partners to mature the individual concepts, and the current status and outlook for the technology. The publication is intended for a wide range of technical and nontechnical audiences.

Joseph R. Chambers retired from the NASA Langley Research Center in 1998 after a 36-year career as a researcher and manager of military and civil aeronautics research activities. He is the author of over 60 technical reports and publications, including NASA Special Publications: [SP-514] *Patterns in the Sky,* on the subject of airflow condensation patterns over aircraft; [SP-2000-4519] *Partners in Freedom,* on contributions of the Langley Research Center to U.S. military aircraft of the 1990s; and [SP-2003-4529] *Concept to Reality,* on contributions of the Langley Research Center to U.S. civil aircraft of the 1990s. He has served as a representative of the United States on international committees in aeronautics and has given lectures in Japan, China, Australia, the United Kingdom, Canada, Italy, France, Germany, and Sweden. Mr. Chambers received several of NASA's highest awards, including the Exceptional Service Medal and the Outstanding Leadership Medal. He also received the Arthur Flemming Award in 1975 as one of the 10 Most Outstanding Civil Servants for his management of NASA stall/spin research for military and civil aircraft.

Marshall

Huntsville Celebrating its Bicentennial

Marshall Center Historian Mike Wright was among several historians and archivists from the Huntsville community who recently met with a committee working on Huntsville's 200th anniversary celebration. Plans called for the city to seal a time capsule that will be opened in the year 2055. The capsule is similar to the one the Marshall Center sealed on its 40th anniversary in 2000, and the city time capsule committee is seeking recommendations on items that might be archived in its capsule.

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News from Headquarters and the Centers (continued)

Stennis Space Center

Haynes Haselmaier, NASA, helps to remove trees from homes and buildings of Pearl River County, MS, residents.

In the aftermath of Hurricane Katrina, the Stennis Space Center (SSC) History Office focused on capturing the significant events that took place during and after the storm at SSC. The center was used as a shelter for thousands in the community and was also used as the staging ground for recovery efforts by the Federal Emergency Management Agency (FEMA) and rescue agencies from 15 states.

Because there were so many stories that needed to be captured, the History Office created a blog for all SSC employees to input their personal stories and images. The SSC History Office also conducted oral history interviews with key employees who were at SSC during the storm. This included those who worked in the Emergency Operations Center, the call center, and the shelters. The oral histories were also conducted with those who worked on team initiatives after the storm, including Stennis Volunteers, Housing, FEMA, and many others. Video and photo documentation of the site and SSC Volunteers working in the surrounding communities were captured for historical purposes.

From left: Bill Graham, Troy Frisbie, and Rodney McKellip, who work at the Applied Sciences Directorate at NASA's Stennis Space Center, help tear out carpeting and dry wall from a fellow employee's house in Pass Christian on 19 September.

Following the storm, the SSC History Office held a special briefing on proper documentation of significant materials in conjunction with the Records Management Office to better ensure that important information was accounted for during and after the storm. Information collected after Hurricane Camille was reviewed to assist management in benchmarking the extent of relief and recovery the Center was involved in.

ARCHIVAL UPDATE

Highlights from the Society of American Archivists' Annual Meeting in New Orleans, August 2005

by Jane H. Odom, Shelly H. Kelly, Leilani Marshall, and April Gage

Archivists from Headquarters, Ames Research Center, and the University of Houston-Clear Lake, which houses the Johnson Space Center (JSC) Space History Collection, attended the 69th annual meeting of the Society of American Archivists in New Orleans in mid August. In attendance were Jane Odom from Headquarters, Leilani Marshall and April Gage from Ames, and Shelly Kelly from the University of Houston at Clear Lake, along with nearly 1,400 other archivists. April is a library science student working in the Ames History Office. Collectively, they attended sessions on digital archiving; development of a digital preservation standard; digital image databases; archival vs. curatorial methods; backlog reduction; donors, researchers, and third-party rights; standardized metrics for assessing use and user services; reference services and the technology explosion; archivists, copyright, and digitization; results of the archival census taken last year; archival certification; and lessons learned from Canadian archival systems. They also attended a variety of roundtable and section meetings. And, of course, there were numerous opportunities to network with colleagues and enjoy the gastronomic excesses of The Big Easy! Below are highlights of the meeting from each of the NASA archivists.

All attended the Opening Plenary Session at which Rand Jimerson, Society of American Archivists (SAA) President, reflected on his tenure as president, provided words of wisdom for practicing archivists, honored past SAA presidents and other dignitaries, and passed the torch to the incoming president. Keynote speaker Andrew Young, former civil rights leader and politician, spoke on preserving the history of diversity in America. In doing so he shared memories of his involvement in the civil rights movement with Dr. Martin Luther King and discussed his views on racial and social inequality. He challenged archivists to explain the importance and social value of archives and to continue to expand their documentation of humanity beyond the famous and powerful whose stories have been traditionally preserved in archives.

Jane Odom found particularly interesting a session reporting the findings of the A*Census, the first truly comprehensive nationwide survey of the archival profession. The survey was funded by the Institute for Museum and Library Services under a program to recruit the next generation of librarians. Almost 12,000 individuals were queried with 5,600 responding, producing an overall response rate of 47 percent. The seven panelists discussed the results of the census, including information on current position held, current employer, gender, age, race, ethnicity, salaries, educational level, continuing education, professional activity of members, and retirement prospects. These and other preliminary findings of the survey can be found at *http://www.archivists.org/a-census/*. The final report will be published in a forthcoming issue of the journal of the Society of American Archivists.

Recognizing that public access and reference are major focuses of her work with the JSC History Collection, Shelly Kelly attended numerous sessions that explored this facet of archival work. One session in particular that she attended, "Archivists Get the Lesson Out: Teaching Teachers about Primary Sources," had excellent ideas for working with educa-

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Archival Update (continued)

tors. Shelly, a certified archivist, also attended "To Be or Not To Be: The Whys and Wherefores of Archival Certification" in support of several colleagues. As immediate past-president of the Society of Southwest Archivists (SSA), she staffed the SSA table to welcome archivists to the region and on another occasion presented the Sister M. Claude Lane Award to religious archivist Bill Sumner. Additionally, she participated in the Academy of Certified Archivists' Item-Writing Workshop. She was also seen at the chocolate fountain at the SAA President's Reception! Ten days after the meeting, when New Orleans was devastated by Hurricane Katrina, Shelly played a primary role in setting up the SSA/SAA Emergency Disaster Assistance Grant Fund. She chairs the committee responsible for reviewing applications for assistance from repositories in the affected area. For more information about this effort, see *www.SSAcares.org*.

Leilani Marshall highlighted a session she attended on new processing guidelines to reduce backlogs. Participants described their application of the findings and recommendations of the Greene/Meissner report on reducing backlogs of 20th century materials in manuscript repositories. This report was published as a result of a National Historical Publications and Records Commission-funded research project. All three speakers were enthusiastic about the report and discussed the different approaches to processing large backlogs that were used, as well as the resounding successes they had with the new approaches. Elements of the new approach to processing large amounts of materials include: very little to no arrangement, rearrangement, or organization on the part of the archives staff, but instead, the materials remain in the order in which they arrived at the archives; folder-level inventories that serve as the only description of materials in the collection; a series and subseries structure that is applied to the collection, although materials are not physically arranged by series, that is, materials in the same series may be scattered throughout the collection in numerous boxes; no rehousing of materials in archival-quality boxes and folders, but retaining the materials in the containers and folders in which they arrived; no removing metal fasteners such as staples and paperclips; no photocopying of newspapers or other acidic materials; no separate sleeves for photographs, slides, etc.; and a reliance on environmental controls over temperature and relative humidity to mitigate the damage done to modern collections by things such as acidic paper and metal fasteners.

April Gage attended a number of sessions on digital archives. In a highly technical session focusing on the development of a digital preservation standard, panelists explained PDF/Archive (PDF/A), a portable document format standard that is being developed for the purpose of resolving issues with long-term storage and preservation of digital documents. The PDF/A format, an incarnation of Adobe's PDF format, is designed to be device- and resolution-independent to ensure that documents can be retrieved and rendered consistently. A complete report about PDF/A and many other reference documents are available at the following Web sites: NPES, The Association for Suppliers of Printing Publishing and Converting Technologies *http://www.npes.org/standards/toolspdfa.html* and Association for Information & Image Management Web site, *www.aim.org/pdfa/app_notes*. Information on how the standard is progressing through the International Standards Organization (ISO) can be found on the ISO Web site. Visit *http://www.iso.org* and see ISO 19005-1.

Jane reminds everyone that next year's annual conference is in Washington, DC, 31 July to 6 August 2006. She hopes to see even more of her NASA History Program colleagues in attendance then, and invites them to come by the History Division for a tour.

OTHER HISTORY NEWS

National Air and Space Museum: Division of Space History

Exhibitions

The Division of Space History (DSH) is collaborating with the Aeronautics Division, the Center for Earth and Planetary Studies, and the National Museum of American History on the curatorial contribution to an exhibition tentatively titled "Finding Time and Place: From Chronometers to GPS" to be mounted at the National Air and Space Museum (NASM). This exhibition will explore changing theories of time and practices in navigation from the mechanical timekeepers of seafaring empires to the Global Position System and atomic clocks of the space age.

The Division of Space History is also at work on a temporary exhibition with the working title of "From Sputnik to Space Station: Images of the Space Age." It will showcase NASM's extensive collection of space art as a commemoration of the first 50 years of space exploration. Anchored by a 40-foot mural of an imagined lunar landscape painted by Chesley Bonestell for the Boston Museum of Science in 1957 (which has not been seen by the public for over 30 years), the gallery will also highlight engineering models of the first satellites launched by the United States and the Soviet Union. It will feature work by artists such as Norman Rockwell, Robert McCall, Andy Warhol, Robert Rauschenberg, and others. The combination of iconic images with less familiar, but nonetheless provocative, visions of space exploration will offer visitors a new view of the space age. In addition to paintings, lithographs, and some three-dimensional art, this gallery will also feature photographs produced over the last 50 years. Many of these, such as the Apollo 8 "Earthrise" photograph or Hubble images of the Eagle Nebula, stand as art themselves. By pairing space art with NASA photography, this exhibit will ask its viewers to reconsider the relationship between artistic visions and scientific realities: how space events inspired artists and how artists reinterpreted actual space images.

Events

On Thursday, 14 July 2005, NASM co-hosted with NASA a conversation with Apollo-Soyuz Test Project (ASTP) astronauts and cosmonauts for NASA Television. The project took place 30 years ago. Roger Launius of DSH served as moderator for this event. The Apollo-Soyuz mission was a major milestone in the United States and Soviet space programs in 1975. As Cold War tensions were evaporating, so was the space race between the Americans and Soviets. Apollo Soyuz brought together spacecraft of two nations, resulting in a historic handshake and meeting in space. The highlight of the 45-minute program was a conversation with the Apollo-Soyuz crew-astronauts Tom Stafford and Vance Brand and cosmonauts Aleksei Leonov and Valeriy Kubasov.

On 27 August 2005, The History Channel aired "Apollo: The Race against Time," which featured NASM efforts to preserve the Saturn V at Johnson Space Center (JSC) and its Apollo spacesuits. Interviews with Roger Launius, Allan Needell, and Amanda Young are

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Other History News (continued)

featured in the documentary. An announcement for this documentary is online at *http://www.saveourhistory.com/tv_schedule/index.html*, along with a short video from the production. Steve Thomas (formerly of *This Old House*) stars as the show's host. In addition to interviews with various members of the NASM staff, the show will also feature Buzz Aldrin and his remarks about his Apollo 11 spacesuit, which is currently undergoing conservation.

Collections and Preservation

DSH curator Valerie Neal has acquired for the National Collection SpaceShipOne the vehicle that took the Ansari X-Prize by making two suborbital spaceflights within a two-week period in the fall of 2004. The SpaceShipOne experimental vehicle was designed for suborbital human spaceflight and is the first privately funded reusable passenger craft to make repeated roundtrips into space. It landed at Dulles Airport at noon on 1 August 2005. Pilot Mike Melvill, veteran of two of those flights, delivered SpaceShipOne to NASM Collections staff and space history curator Valerie Neal. The spacecraft will be displayed in the Milestones of Flight gallery near the Spirit of St. Louis and the Bell X-1 aircraft, with a public unveiling on 5 October 2005.

Three hours after the unprecedented spacewalk to remove two pieces of tile gap filler from the underside of the space shuttle Discovery on 3 August, Valerie Neal sent an inquiry to NASA about obtaining one of them for the national collection. The request received immediate attention, and on 8 August she received an affirmative response. When NASA completes failure analysis, one or both of the gap fillers will be transferred to NASM. These pieces are of interest as an unexpected problem on the Return to Flight mission and for provoking a historic extravehicular activity (EVA) in a manner never before attempted.

The Division of Space History is working to preserve two of the remaining three Saturn Vs in NASM's collection located at the Johnson Space Center, Houston, Texas, and the Marshall Space Flight Center (MSFC), Huntsville, Alabama. These preservation efforts involve several coordinated phases. Phase 1: preparation work and cleaning, drying, application of corrosion inhibitors, etc.; Phase 2: construction of a temporary (10-year+ rated) enclosure that will provide protection from high humidity; Phase 3: detailed restoration of external surfaces (stripping, repair of damaged surfaces), general repainting; and Phase 4: cosmetic enhancements (decals, replacement of missing parts with mock ups, etc). The JSC effort is much farther along, and is into Phase 3 of preservation work. The MSFC effort has just started and is still in Phase 1.

Research and Publications

Paul E. Ceruzzi has published "Operations Research and Military Contracting in the Washington, D.C. Area, 1945–1960," *Society for History in the Federal Government Occasional Papers* 5 (2005), 33–56, which is based on his larger study, *High Technology in the Northern Virginia Region*, a manuscript currently under consideration for publication. He also published "Moore's Law and Technological Determinism: Reflections on the History of Technology," *Technology & Culture 46* (July 2005), 584–593.

Martin Collins has published "One World…One Telephone: Iridium, One Look at the Making of a Global Age," *History and Technology* 21 (September 2005), 301–324. This article offers one empirical reference point on how global conceptions entered into one of the signature technology and business ventures of the 1990s: Iridium, a pan-national corporation initiated by Motorola to provide worldwide cellular telephony via satellites and handheld mobile phones.

Jim David published his article, "Was It Really 'Space Junk'? U.S. Intelligence Interest in Space Debris that Returned to Earth," in *Astropolitics: The International Journal of Space Power and Policy* 3 (Spring 2005), 43–65. In this article, he explores the massive U.S. Cold War intelligence effort to learn about Soviet missile and space programs by acquiring and analyzing Soviet space debris that had returned to Earth. Equally important was retrieving U.S. fragments that had landed in foreign nations to prevent the Soviets from recovering and exploiting them. In many cases, the United States successfully acquired and tested important Soviet fragments in addition to retrieving its own debris.

David E. DeVorkin has published the following articles and reviews: "Eloge: Robert Phillip Multhauf, 1919–2004," *Isis* 96 (June 2005), 252–257; a review of Asif Siddiqi, "Challenge to Apollo: The Soviet Union and the Space Race, 1945–1974," *Isis* 96 (July 2005), 308–309; and a review of Simon Mitton, "Conflict in the Cosmos: Fred Hoyle's Life in Science," *American Scientist* (September–October 2005 issue).

Roger D. Launius published "Technology in Space," that appeared in *A Companion to American Technology*, edited by Carroll Pursell (Oxford, U.K.: Blackwell Publishing, 2005, 275–297). Part of the Blackwell Companions to American History series, *A Companion to American Technology* comprises 22 original essays that analyze the American technology phenomenon and provide a survey of its history and historiography in the United States. Each essay is written by a separate expert in the field and includes developments in airplanes, automobiles, computing, spaceflight, television, and more. He also published "Eisenhower and Space: Politics and Ideology in the Construction of the U.S. Civil Space Program," 151–182, edited by Dennis E. Showalter, *Forging the Shield: Eisenhower and National Security in the 21st Century* (Chicago, IL: Imprint Publications, 2005). This is a paper delivered at a symposium on Eisenhower and national security held at the National Defense University, Ft. McNair, on 26 to 28 January 2005.

Cathleen Lewis gave a talk entitled "World's Fairs in the Space Age: A Tale of Two Spacecraft" on 2 June 2005 at the Hagley Museum and Library in Wilmington, Delaware. This talk was part of the Lecture Series that the Hagley is cosponsoring with the Delaware Humanities Council in conjunction with their exhibition "Centuries of Progress: American World's Fairs, 1853 to 1982."

Michael Neufeld published "The End of the Army Space Program: Interservice Rivalry and the Transfer of the von Braun Group to NASA, 1958–1959," *Journal of Military History* 69 (July 2005), 737–758. This article details the interservice struggle after Sputnik over the future of Wernher von Braun's group in Huntsville, Alabama. The little-used papers of General J.B. Medaris, von Braun's boss, provide new, valuable insights into the Army-Air Force struggle over missiles and space and why, ultimately, the Army lost the von Braun group to NASA.

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Other History News (continued)

Margaret Weitekamp published "The 'Astronautrix' and the 'Magnificent Male': Jerrie Cobb's Quest to Be the First Woman in America's Manned Space Program," in *Impossible to Hold: Women and Culture in the 1960s*, edited by Avital H. Bloch and Lauri Umansky (New York: New York University Press, 2005), 9–28. Our congratulations to Margaret for receiving 2005 Eugene M. Emme award for astronautical literature from the American Astronautical Society for her book, *Right Stuff, Wrong Sex: America's First Women in Space Program* (Johns Hopkins University Press, 2004).

Amanda Young published "The Spacesuit," 162–179, edited by Matilda McQuaid, *Extreme Textiles: Designing for High Performance* (New York: Princeton Architectural Press, 2005).

NASM Fellows Projects, 2005–2006

NASM also announces the following awards and fellowships for 2005–2006:

Lindbergh Chair
James R. Fleming, Professor of Science, Technology, and Society at Colby College, Waterville, Maine. Ph.D. History of Science, Princeton University (1988). Topic: *Flight and the Evolution of Weather Prediction*. As Lindbergh Chair, Dr. Fleming will explore the development of meteorology, climatology, and oceanography in relation to flight.

Ramsey Fellow in Naval Aviation History
Thomas J. Goetz, Independent Writer, Guild Communication, Ph.D. City University of New York (2001). Topic: *The Development of U.S. Navy Jet Fighter Aircraft, 1941–1950*. As Ramsey Fellow, Dr. Goetz will examine the design, development, testing, and operational success of the first decade of naval jet-powered aircraft.

Verville Fellowship
Dennis R. Jenkins, Senior Principal Systems Consultant, SGT, Inc., M.S. Pacific Western University (1982). Topic: *Escaping the Gravity Well: A Policy History of Space Access*. As Verville Fellow, Mr. Jenkins will analyze the policy implications of access to space with special emphasis on the institutional and cultural thinking that has restricted the exploration of alternative technologies and methods of escaping gravity.

Guggenheim Fellowship (Predoctoral)
Aaron L. Alcorn, Predoctoral Candidate, Case Western Reserve University
Topic: *Modeling Behavior: Boys, Engineers, and the Model Airplane in American Culture*.

Guggenheim Fellowship (Predoctoral)
Mary M. Tinti, Predoctoral Candidate, Rutgers University
Topic: *Air Travel, Technology and Civic Identity: Contemporary Sculpture in American Airports*

Guggenheim Fellowship (Postdoctoral)
Gerard J. Fitzgerald, Postdoctoral Fellow, Dibner Institute, Massachusetts Institute of Technology, Ph.D. Carnegie Mellon University (2003)
Topic: *The Nature of Strategic Bombing: Air War, Medicine, and the Environment, 1910–1950*

Guggenheim Fellowship (Postdoctoral)
Nicholas A. de Monchaux, Asst. Professor, University of Virginia School of Architecture, M.Arch, Princeton University (1999)
Topic: *Spacesuit: 21 Essays on Technology, Complexity, the Body and Design*

Chief Historian Receives the LeRoy E. Doggett Prize for Historical Astronomy

The Historical Astronomy Division (HAD) of the American Astronomical Society will award Dr. Steven J. Dick the fifth LeRoy E. Doggett Prize for Historical Astronomy during the January 2006 meeting in Washington, DC. HAD awarded the prize to Dr. Dick for his distinguished career and publication record that has significantly influenced the field of the history of astronomy.

More then 25 years ago, Steve Dick began his career as a historian of astronomy and became one of the most respected scholars in the field. He researched the history of ideas of extraterrestrial life and published several books with Cambridge University Press, including *Plurality of Worlds: The Origins of the Extraterrestrial Life Debate from Democritus to Kant* (1983), *The Biological Universe, the Twentieth Century Extraterrestrial Life Debate, and the Limits of Science* (1996), and *Life on Other Worlds: The Twentieth Century Extraterrestrial Life Debate* (1998). In addition, from 1989 to 2003, Steve was Historian of Science at the U.S. Naval Observatory and wrote its history, *Sky and Ocean Joined* (Cambridge, 2003).

Since 2003, Steve has been Chief Historian at NASA. Congratulations to our Chief Historian, for his achievement and recognition in the Doggett Prize!

Faculty Position at the University of North Dakota

The Department of Space Studies at the University of North Dakota is searching for an assistant professor on the tenure-track in the field of business and management of space enterprises. A Ph.D. in an appropriate field (economics, science and technology studies, sociology, history, or history of science and technology) with a management and business specialization or a doctorate of business administration is required. A strong interest in developing collaborative research projects in these fields as they relate to the development and exploration of space is expected. Significant and ongoing involvement with space missions and the space community will be an advantage. This new faculty position will enhance and complement the department's current emphasis in space policy and law, space management and business, space systems engineering, space life sciences, planetary sciences, remote sensing, and Earth system science. The appointment will start no later than Fall Semester 2006 and review of applications begins 1 November 2005. For more information about the department, please visit its Web site at *http://www.space.edu* or send an email to *fetter@space.edu*. To apply, send a letter of application, CV, teaching and research statements, publication examples, and the names and contact information for three references to: Space Business and Management Search Committee, Department of Space Studies, University of North Dakota, Grand Forks, ND 58202-9008.

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Other History News (continued)

Curator Position at the San Diego Aerospace Museum

The San Diego Aerospace Museum is looking for candidates with at least five years of specialized experience related to museum collections; a bachelor's degree in history, museum studies (museology), or related field of study; and extensive knowledge of aviation history and technology to fill a curatorial position. The curator will be responsible for acquisition, preservation and conservation, documentation, and interpretation of the museum's artifact collection and objects on loan. The applicant should clearly describe in his/her resume or application his/her work experience, education, and/or training as it relates to the announced vacancy. For more information about the position or to send an application, please contact John Bolthouse, Chief Operating Officer, by email at *jbolthouse@sdasm.org*.

Emme Award

The Emme Award Committee of the American Astronautical Society (AAS) is soliciting nominations for the 2005 Eugene M. Emme Award for Astronautical Literature. Please send your nominations to Michael Ciancone, Emme Award Committee Chairman, at *michael.l.ciancone@nasa.gov* or 281-483-8848 and include publishing info when possible, such as mailing address or Web site, to help us contact the publisher.

The Emme Award, named in recognition of Eugene M. Emme, the first NASA Historian, was established in 1982 to annually recognize an outstanding book serving public understanding about the impact that astronautics has had on society and its potential for the future.

Recent Emme Award winners include *Right Stuff, Wrong Sex: America's First Women in Space Program* by Margaret Weitekamp (Johns Hopkins University Press, 2004) and *Leaving Earth: Space Stations, Rival Superpowers, and the Quest for Interplanetary Travel* by Robert Zimmerman (Joseph Henry Press, 2003).

CALL FOR PAPERS AND PROPOSALS

Journal of Space Law

The National Remote Sensing and Space Law Center of the University of Mississippi School of Law announces the production of Volume 31, Issue 2 of the *Journal of Space Law* in late 2005. They invite authors to submit manuscripts and accompanying abstracts for review and possible publication in the journal, especially papers addressing all aspects of international and national space law or the interface between aviation and space law. Please submit manuscripts and abstracts via email in Microsoft Word or WordPerfect to the *Journal of Space Law* at *jsl@olemiss.edu*.

NASA Project Management Challenge 2006

NASA will hold its 2006 Project Management conference on 21–22 March 2006 in Galveston, Texas, and is seeking speaker participation. Sponsored by NASA's Academy of Program and Project Leadership, this year's theme is "Putting Ideas into Action." Please visit the conference Web site for more information at: *http://pmchallenge.gsfc.nasa.gov/*.

Astropolitics

The journal *Astropolitics* (see *http://www.tandf.co.uk/journals/titles/14777622.asp*) welcomes contributions on all aspects of space policy and history. Astropolitics is a peer-reviewed academic journal published by Taylor & Francis/Routledge. The journal is dedicated to policy-relevant academic inquiry into the civil, commercial, military, and intelligence uses of outer space. *Astropolitics* provides rigorous, original, and incisive analysis on all topics of space policy. Committed to the highest editorial standards and the best analysis, *Astropolitics* is the international journal of choice for the academic, the policy maker, and the professional in the space community. Please e-mail contributions to the managing editors, Eligar Sadeh at *sadeh@space.edu* and John Sheldon at *sheldon@astropolitics.org*.

PUBLICATIONS

NASA Publications

Risk and Exploration: Earth, Sea and the Stars (NASA SP-2005-4701), edited by Steven J. Dick and Keith L. Cowing. The book contains the engaging, highly readable edited proceedings of a symposium that the NASA Administrator sponsored in September 2004, featuring luminaries in exploration from a variety of fields such as mountain climbing, polar expeditions, cave diving, and underwater robotics. The topic of balancing the risks and rewards of exploration, especially in the context of space, continues to be very relevant for historians, policymakers, and all those who follow NASA's activities. Please order by contacting the NASA Center for Aerospace Information at 7121 Standard Drive, Hanover, Maryland 21076, 301-621-0390 or order online at *https://www.sti.nasa.gov/cgi-bin/ordersti.pl*. Please mention the title and Document ID number 20050192497. The price code is EA4 (Within U.S. $20; outside U.S. $40.00). Shipping and handling costs are additional and are as follows: Standard, U.S. only (UPS) $2.00 per item; Federal Express, U.S.: $7.00, International: $17.00. This book is also available online at *http://history.nasa.gov/SP-4701/riskandexploration.pdf*.

Realizing the Dream of Flight: Biographical Essays in Honor of the Centennial of Flight, 1903–2003 (NASA SP-2005-4112), edited by Virginia P. Dawson and Mark D. Bowles. This book contains essays that examine the lives of aerospace pioneers through the lens of biography. The essays grew out of the presentations of 12 aerospace historians at a November 2003 conference sponsored by the NASA History Division and held at the Great Lakes Science Center in Cleveland, Ohio, to commemorate the Wright brothers' first powered flight. Subjects of the essays include daredevil pilots, entrepreneurs, military strategists, and managers of large-scale aerospace technology—people who advanced the art, science, and business of air and space travel, often through sheer force of character.

Innovation in Flight: Research of the NASA Langley Research Center on Revolutionary Advanced Concepts for Aeronautics (NASA SP-2005-4539), by Joseph R. Chambers. The book addresses the topic of revolutionary research by the Langley Research Center in aeronautics. Ten selected examples of potentially breakthrough research concepts that have not yet been applied are discussed, including the benefits of each concept, the unique

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Publications (continued)

challenges and barriers to application for that concept, in-depth reviews of activities by Langley and its partners to mature the individual concepts, and the current status and outlook for the technology. The publication is intended for a wide range of technical and nontechnical audiences.

Forthcoming NASA Publications

Aeronautics and Space Report of the President: Fiscal Year 2004 Activities. Mandated by law, the "President's Reports" summarize the government's aerospace activities each year and contains information on 14 federal departments and agencies. It also contains an executive summary organized by agency; narrative sections organized by subject; as well as extensive appendices containing useful historical data on spacecraft launches, budget figures, key policy documents from the fiscal year, and a glossary.

Mission to Jupiter: A History of the Galileo Project, by Michael Meltzer. This informative manuscript discusses the Galileo spacecraft project from its inception to its conclusion. It should be published in late 2005.

Nose Up: High Angle-of-Attack and Thrust Vectoring Research at NASA Dryden, 1979–2001, by Lane Wallace. This monograph examines three different programs that explored high-angle of attack flight: the F-18 High Alpha Research Vehicle (HARV), the X-31, and the F-15 Advanced Controls Technology for Integrated Vehicles (ACTIVE). This publication should be published in late 2005.

Unconventional, Contrary, and Ugly: The Story of the Lunar Landing Research Vehicle, by Gene Matranga, Wayne Ottinger, and Cal Jarvis. This monograph recounts the history of the Lunar Landing Research Vehicle (LLRV) from its inception through its service as a training tool at the Manned Spaceflight Center (now Johnson Space Center). The well-illustrated monograph should be published in late 2005.

Upcoming Non-NASA Publications

First Man: The Life of Neil A. Armstrong, by James R. Hansen. This book is the only authorized biography of Neil Armstrong, the first man on the moon. Hansen provides an in-depth analysis of the rich history and rewarding career of Armstrong from his incredible research effort. *First Man* will be available in bookstores from Simon & Schuster on 12 November 2005.

Dictatorship of the Air: Aviation Culture and the Fate of Modern Russia, by Scott Palmer. This new book is part of the Centennial of Flight Book Series edited by Von Hardesty and John Anderson at the National Air and Space Museum and published by Cambridge University Press. *Dictatorship of the Air* focuses on how and why the airplane became the most influential technology in 20th century Russia. Palmer incorporates unused Russian archival materials and rich illustrations to address his groundbreaking topic. The book should be available in 2006.

New NASA Web Sites

Historic Properties of the John F. Kennedy Space Center. This brochure identifies historic properties listed on the National Register of Historic Places under the designation NASA, John F. Kennedy Space Center and is now available online at *http://www-lib.ksc.nasa.gov/lib/archives_electronic.html*.

Taming Liquid Hydrogen: The Centaur Upper Stage Rocket, 1958–2002 (NASA SP-2004-4230), by Virginia P. Dawson and Mark D. Bowles. *Taming Liquid Hydrogen* tells the story of Centaur, the first liquid-hydrogen rocket. In eight chapters, Virginia Dawson and Mark Bowles discuss the technical and political aspects of the Centaur story, including nearly being abandoned in the 1980s and the controversy it caused in the wake of the Challenger accident. This book is now available online at *http://history.nasa.gov/SP-4230.pdf*.

CONTRACTS

New NASA History Projects Under Way

Sunny Tsiao of ITT has begun work on a two-year contract to revise, augment, and update the NASA contractor report *Keeping Track: A History of the GSFC Tracking and Data Acquisition Networks: 1957–1991*, edited by Kathleen Morgan and Frank Mintz. The final product will be a scholarly manuscript on the history of NASA's Spaceflight Tracking and Data Network (STDN). The book will focus on the time period since 1957, with special emphasis on 1991 to the present time. The NASA History Division is administering this project jointly with the Space Communications Office within the Space Operations Mission Directorate.

Upcoming Contracts

A request for proposal has been issued for a monograph documenting "lessons learned" from NASA return-to-flight activities from the February 2003 *Columbia* accident to the July 2005 launch of Space Shuttle *Discovery*. The contractor will develop an historical account of the activities that accompanied the implementation of the Columbia Accident Investigation Board recommendations. The focus of the manuscript should be on the recommendations, decisions, justifications, and organizational and technical changes that preceded the resumption of shuttle operations. The NASA History Division will administer this project jointly with the NASA Office of the Chief Engineer.

Another request for proposal has been issued for a contractor to revise, augment, and update the *Wind Tunnels of NASA*, written by Donald D. Baals and William R. Corliss and published in 1981 by the NASA Scientific and Technical Information Branch, Washington, D.C. The revised manuscript shall cover all of the wind tunnels that have been designed, built, and operated by or for the National Advisory Committee for Aeronautics (NACA) and NASA. This includes wind tunnels that have been modified, relocated, demolished, or are no longer being utilized, as well as wind tunnels still in use today. The publication shall provide background discussion on the general history of wind tunnel technology, including all the users (government, military, and corporate) and applications of the wind tunnels. The focus of the publication shall be on wind tunnels as physical assets. The publication shall provide a summary of the wind tunnels that offers a

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Contracts (continued)

physical description as well as information regarding significant programs, achievements, or persons associated with the tunnel. The publication shall serve as a technical resource for future researchers to determine the eligibility of existing wind tunnels for listing on the National Register of Historic Places. Full details are online at *http://prod.nais.nasa.gov/cgi-bin/eps/synopsis.cgi?acqid=117973*.

AEROSPACE HISTORY IN THE NEWS

Hubble Pioneer John Bahcall Dies

American astronomy pioneer, Dr. John N. Bahcall, who was one of the first men to push for the creation of the Hubble Space Telescope, died 17 August 2005. He was 70 years old.

Dr. Bahcall led the effort to create the Hubble Space Telescope in the 1970s, along with Lyman Spitzer. He chaired the National Academy of Science committee that outlined a roadmap for the nation's astronomy research, a study that became known as the Bahcall Report. Up until the end of his life, the National Medal of Science winner pushed to save the telescope.

Outside of his work on Hubble, Dr. Bahcall was the Richard Black Professor of Astrophysics in the School of Natural Sciences at the Institute for Advanced Study in Princeton, was the president-elect of the American Physical Society, and had served as president of the American Astronomical Society. His most recognized scientific contribution came in 1964, when he used studies of neutrinos to analyze the behavior of the Sun and how stars shine. Dr. Bahcall also published more than 500 papers, books, and articles in his lifetime.

NASA Names Center Director

Lesa B. Roe assumed the top spot at NASA's Langley Research Center, the Agency's oldest Center, on 3 October, making it the second time that a woman has been in charge of a NASA field Center. She is also the youngest female Center Director in NASA's history. Roe had previously served as Deputy Director at Langley and will be responsible for the Center's aeronautical and space research programs, along with its facilities, personnel, and administration.

Roe, who holds undergraduate and master's degrees in electrical engineering, has more than 20 years experience in engineering, technical, and managerial positions in both the government and the private sector. Her background includes two years in NASA Center leadership, four years in the International Space Station program management, nine years experience in technical management, and five years experience in radio frequency communications test and payload systems engineering.

NASA Turns 47!

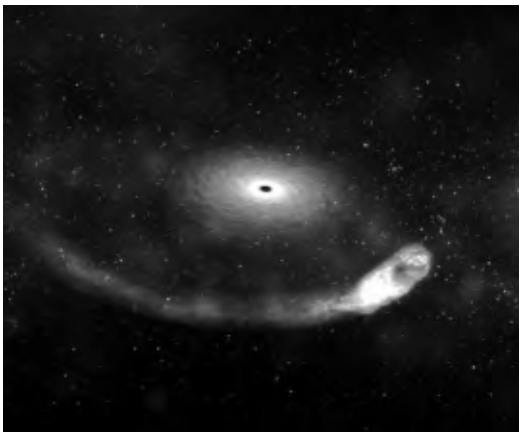
On 1 October, NASA celebrated its 47th anniversary. Administrator Michael Griffin released a statement urging everyone to “take stock of the accomplishments our Agency has made in the past and to look forward to the tremendous opportunity we have to assume the mantle of 21st century leadership in the continued exploration and use of space.” Griffin added that he looks forward to the implementation of the Vision for Space

Exploration, which requires open and honest communication with the public and should have long-term payoffs for the human exploration of space.

NASA Helps Solve Cosmic Mystery

With help from several ground-based telescopes and NASA satellites, scientists have solved the 35-year-old mystery behind the powerful, split-second flashes of light known as gamma-ray bursts. The equipment was able to capture two of these flashes, which, until now, occurred too rapidly to record. Scientists have determined that this phenomenon is caused by violent collisions in space, either between a black hole and a neutron star or between two neutron stars.

One such burst was recorded on 9 May by the Swift satellite and another on 9 July by the High-Energy Transient Explorer (HETE). “Gamma-ray bursts, in general, are notoriously difficult to study, but the shortest ones have been next to impossible to pin down,” said Dr. Neil Gehrels, principal investigator for the Swift satellite at NASA's Goddard Space Flight Center. “All that has changed. We now have the tools in place to study these events.”



An artist's conception of a neutron star colliding with a black hole, one of two causes behind a Gamma-ray burst. Scientists were able to capture an image two such events using the High-Energy Transient Explorer (HETE) and Swift satellite.

Upcoming Meetings and Events

2005–2006 Maryland Colloquium in the History of Technology

The University of Maryland holds monthly colloquiums in history of technology on the first Thursday of the month during the academic year. It invites all members of the history of technology community from Maryland, DC, and northern Virginia to attend. The most common format involves the distribution of draft papers via email to those requesting it about a week before meeting. A brief presentation at the colloquium is typically followed by a short, prepared comment or critique, then by a lively open discussion. The event is followed, for those who can make it, by dinner at a nearby College Park restaurant. Suggestions are welcome and potential presenters encouraged to e-mail David Sicilia at *dsicilia@umd.edu*. The program is supported the University of Maryland's Certificate Program in Science, Technology, and Society and the Department of History.

Curator's Choice Presentations by the National Air and Space Museum

NASM sponsors Curator's Choice Presentations on the Mall through the end of 2005. All are invited to attend. The schedule of presenters, topics, and locations includes:

9 November, Jeremy Kinney/Aero, “Tell It To The Marines!: The Boeing F4B-4 Fighter” (Sea-Air Operations, 203)

continued on next page

16 November, John Grant/CEPS, “Mars Exploration Rovers” (Exploring the Planets, 207)

23 November, Frank Winter/DSH, “Goddard's 1915 Flash Powder Experiment Box: Our Oldest Space Artifact?” (Rocketry and Spaceflight, 113)

30 November, Tom Dietz/Aero, “USS Enterprise: Modeling Craftsmanship and Detail” (Sea-Air Operations, 203)

7 December, Joanne London/Aero, “Fly Now! Posters that Want to Make You Fly” (Jet Aviation, 106)

14 December, Russ Lee/Aero, “Rutan Voyager: Non-Stop Around the World Without Refueling” (Milestones of Flight, 100)

21 December, Mike Neufeld/DSH, “Von Braun Disney Space Station Model” (Rocketry and Spaceflight, 113)

From 3 to 6 November 2005, the Society for the History of Technology (SHOT) and the History of Science Society will hold a joint annual meeting Minneapolis, Minnesota. For more information, please visit SHOT’s Web site at *http://www.shotprogram.org*.

From 15 to 16 November 2005, the American Astronautical Society will hold its National Conference and 52nd Annual Meeting entitled "Building Bridges to Exploration: The Role of the International Space Station" in Houston, Texas. For more information, please visit the society’s Web site at *http://www.aashouston.org/*.

From 15 to 17 November 2005, the Space Congress and Space Symposium merge to present Florida Space 2005 at the Kennedy Space Center Visitor Complex. This year's theme is “Launching New Opportunities.” The conference is being managed by The Space Foundation in association with NASA KSC, USAF 45th Space Wing, Florida Space Authority, and Canaveral Council of Technical Societies. For more information, please visit *https://www.floridaspace.org*.

From 5 to 8 January 2006, the American Historical Association will hold its 120th annual meeting in Philadelphia, Pennsylvania. The program includes the session, “Social Shaping of Weaponry: The History of Military Technology in Context,” co-sponsored by the U.S. Commission on Military History and the Society for the History of Technology. For more information, please visit its Web site at *http://historians.org/annual/index.cfm*.

From 9 to 12 January 2006, the American Institute of Aeronautics and Astronautics (AIAA) will host its 44th Annual Aerospace Sciences Meeting and Exhibition in Reno, Nevada. The program includes panel sessions on aviation and spaceflight history. For more information, please visit AIAA’s Web site at *http://www/aiaa.org*.

From 11 to 13 January 2006, the Association of the U.S. Army (AUSA) and the Army Aviation Association will cohost its annual Army Aviation Symposium and Exhibition in Washington, DC. For more information, please visit *http://www.ausa.org*.

From 8 to 11 February 2006, the Southwest/Texas Popular Culture Association/American Culture Association will host its annual “Atomic Culture in the Nuclear Age Conference”

in Albuquerque, New Mexico. For more information, please visit its Web site at *http://www.nmt.edu/~szeman*.

From 14 to 15 March 2006, the American Astronautical Society will hold its 44th Goddard Memorial Symposium in College Park, Maryland. For more information, please visit its Web site at *http://www.astronautical.org*.

From 25 to 28 March 2006, the National Air & Space Museum will host its 18th Annual Mutual Concerns of Air and Space Museums Symposium in Washington, DC. For more information, please contact Jean DeStefano by email at *destefanoj@si.edu* or visit its Web site at *http://www.nasm.si.edu*.

Societal Impact of Space Exploration

The NASA History Division and the Department of Space History at the National Air and Space Museum will be hosting a conference on the "Societal Impact of Space Exploration." The meeting will be held in Washington, D.C., 19 through 21 September 2006. The purpose is to examine with rigorous research what the impact has been, both nationally and internationally, of activities in space over the last 50 years. The conference will also address the impact of society on the space program.

Five sessions are currently planned:
Session I. Catalyzing Events
Session II. Commercial and Economic Impact
Session III. Applications Satellites, the Environment, and National Security
Session IV. Local Impacts: Educational, Social, Political, Economic
Session V. Philosophical and Cultural Impact: Our Place in the Universe

Look for additional information on the conference in future editions of *New & Notes*.

IMAGE IN SPACE HISTORY

In the photograph above, two seamstresses are edging a sunshade for the Skylab Orbital Workshop, the United States' first experimental, earth orbiting space station. The sunshade was to replace the micrometeoroid/heat shield that was lost during the launch of the unmanned Skylab 1 workshop on 14 May 1973. Without this shield, the workshop had little protection from sun exposure and temperatures inside the workshop could reach dangerous highs. A three-man crew was scheduled to launch toward the workshop on 15 May, but their launch was delayed by 10 days as engineers, scientists, and technicians worked out a solution. The sunshade design, as seen above, was selected in part because it could be attached to the exterior of Skylab without requiring the crew of Skylab 2 to leave the Skylab.

Skylab enabled the three, three-person astronaut crews who lived there from May 1973 to February 1974 to conduct thousands of experiments and make observations in areas such as solar astronomy, life sciences, astrophysics, Earth observations, human/systems studies, Comet Kohoutek observations, materials science, and student experiments. In addition to the valuable data, information, and lessons learned from the research conducted on Skylab, this experimental space station proved that humans could live and work in orbit for extended periods of time. After the last crew left in February 1974, Skylab remained in orbit for another five years before re-entering the atmosphere and burning up on 11 July 1979.

The Web site *http://www-pao.ksc.nasa.gov/kscpao/history/skylab/skylab.htm* has more information about Skylab. You can also visit the History Division Web site at *http://history.nasa.gov*.

CONTACT INFORMATION AND CREDITS

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To receive *News and Notes* via e-mail, send a message to *domo@hq.nasa.gov*. Leave the subject line blank. In the text portion, simply type "subscribe history" without the quotation marks. You will receive confirmation that your account has been added to the list for the newsletter and for receiving other announcements. We also post the latest issue of this newsletter at *http://history.nasa.gov/nltrc.html* on the Web.

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

We also welcome comments about the content and format of this newsletter. Please send comments to Glen Asner, newsletter editor and compiler, at *glen.asner@nasa.gov*.

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Mission

To understand and protect our home planet,
To explore the universe and search for life,
To inspire the next generation of explorers

. . . as only NASA can.

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Space Administration

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