

NASA HISTORY: CALENDAR YEAR 2004 IN REVIEW

Introduction

As part of the ongoing NASA transformation, during 2004 the NASA History Office became the NASA History Division, one of six Divisions in the Office of External Relations. During the year the efforts of the NASA History Division continued to focus on its core goals of conducting a high quality, academically sound program of research pertinent to NASA leadership's concerns; effectively acquiring, preserving, and making available documentary information in the NASA Historical Reference Collection; and disseminating historical information and understanding to the widest practicable audience. In accomplishing this mission the NASA History Division pursues multiple objectives:

1. Conduct an active, high-quality history publication program.
2. Provide prompt and accurate responses to all requestors of NASA historical information.
3. Aggressively disseminate historical information and understanding to the broadest possible audience.
4. Facilitate scholarly research on NASA's historical achievements by academic experts outside NASA, to enhance understanding of this key aspect of U.S. history.
5. Comply with legislation requiring NASA to prepare the multi-agency, consolidated report summarizing the Government's aeronautics and space activities for the year.
6. Focus on applied historical research efforts of interest and use to NASA executive leadership.
7. Aggressively acquire, preserve, and make available documentary information in the NASA Historical Reference Collection.
8. Use technology to collect, preserve, and disseminate NASA history.
9. Achieve agency-wide involvement in the preservation and dissemination of history.

In order to help achieve these goals, during the year a top-level five-year Strategic Plan was followed. Its basic elements include:

- ❖ **Maintain NASA History series, seek out subjects with little research to date**
- ❖ **Maintain and improve the NASA Historical Reference Collection**
- ❖ **Sponsor four conferences**
- ❖ **Add societal impact of spaceflight to portfolio**
- ❖ **Improve outreach with the History Division newsletter**
- ❖ **Encourage substantive history programs at NASA Centers**

As reflected below, progress was made in all of these areas over the year. A new newsletter format with more substantive content was introduced with the February, 2004 issue. Book contracts were awarded or in progress on planetary protection, aeronautics at NASA since 1958, the continuation of the Historical Databooks to cover the years 1989-1998, and life science at NASA since 1980. Plans were underway for the first conference, on “Critical Issues in the History of Spaceflight,” to be held in March, 2005. This is to be followed in subsequent years by conferences on the societal impact of space exploration, and on subjects related to the upcoming 50th anniversaries of the Space Age (2007) and of NASA itself (2008). A more detailed five-year Strategic Plan is in progress.

I. NASA Historical Publication Program

An important element of the NASA History Program continued with the preparation of solid, well-researched works on the history of the U.S. civil space program.

NASA Special Publications

Bowles, Mark D., and Bob Arrighi. *NASA's Nuclear Frontier: the Plum Brook Research Reactor* (NASA SP-2004-4533).

Bowles, Mark D., and Virginia P. Dawson. *Taming Liquid Hydrogen: The Centaur Upper Stage Rocket, 1958-2002* (NASA SP-2004-4230). And CD-Rom by the same name (SP-2004-4606), produced by Kristin Jansen and Mark Bowles.

Hansen, James R. General Editor, *The Wind and Beyond: Journey into the History of Aerodynamics in America; Volume I: The Ascent of the Airplane* (NASA SP-2003-4409).

Iliff, Kenneth W., and Curtis L. Peebles. *From Runway to Orbit: Reflections of a NASA Engineer* (NASA SP-2004-4209).

Launius, Roger D. *Apollo: A Retrospective Analysis* (NASA SP-2004-4503).

Logsdon, John M. General Editor. *Exploring the Unknown: Selected Documents in the History of the U.S. Civil Space Program, Volume VI, Exploring the Sun and Earth* (NASA SP-2004-4407).

Mallick, Donald L., with Peter W. Merlin. *The Smell of Kerosene: A Test Pilot's Odyssey* (NASA SP-2004-4208).

Remembering Apollo 11: The 35th Anniversary Data Archive CD-ROM (SP-2004-4601).

U.S. Centennial of Flight Commission. *Born of Dreams ~ Inspired by Freedom* DVD (NASA SP-2004-4604).

NASA History Division Books from Other Publishers

Butrica, Andrew J. *Single Stage to Orbit: Politics, Space Technology, and the Quest for Reusable Rocketry* (Baltimore: Johns Hopkins University Press, New Series in NASA History, 2003).

Other Publications

Gelzer, Christian, and James Tomayko. *The Story of Self-Repairing Flight Control Systems* (Dryden Historical Study #1).

Aeronautics and Space Report of the President: Fiscal Year 2002 Activities.

Aeronautics and Space Report of the President Fiscal Year 2003 Activities.

Nearing Publication

NASA historians worked toward the publication of several other histories on a wide diversity of subjects, including those below.

Chertok, Boris. *Rockets and People*, Volume 1 (NASA SP-2005-4110). Chertok has had a storied career in the Soviet/Russian aerospace sector. His four-volume memoirs were originally translated from Russian into German and published in Germany. This book was published in January 2005.

Laufer, Alex, Todd Post, and Ed Hoffman. *Shared Voyage: Learning and Unlearning from Remarkable Projects* (NASA SP-2005-4111). This slender but compelling manuscript is a joint project with Ed Hoffman's Academy for Project and Program Leadership. It covers four case studies in aerospace project management – two NASA and two DoD. This book was published in January 2005.

McCurdy, Howard E. *Low-Cost Innovation in Spaceflight: The Near-Earth Asteroid Rendezvous (NEAR) Shoemaker Mission* (SP-2005-4536). This well-written review examines the managerial history of the successful NEAR mission.

Meltzer, Michael. *Mission to Jupiter: A History of the Galileo Project*. This informative manuscript discusses the Galileo spacecraft project from its inception to its conclusion.

Seamans, Robert C. *Project Apollo: The Tough Decisions* (NASA SP-2005-4537), Monograph in Aerospace History 37. This work expands upon the NASA chapter of Seamans's autobiography, *Aiming at Targets* (NASA SP-1996-4106). It considers the management challenges faced by key NASA officials such as Seamans.

Wallace, Lane. *Nose-Up: High-Angle-of-Attack and Thrust Vectoring Research at NASA Dryden, 1979-2001* (SP-2005-4534). This monograph examines three different programs that explored high-angle-of-attack flight: the F-18 High Alpha Research Vehicle, the X-31, and the F-15 Advanced Controls Technology for Integrated Vehicles.

NASA History Award Winners

Two NASA History projects were co-winners of the 2004 Historic Manuscript Award of the American Institute for Astronautics and Aeronautics (AIAA). Erik M. Conway's *High Speed Dreams: A History of NASA's Supersonic Transport* is a comprehensive history of NASA's supersonic commercial aircraft program. This history documents the programmatic, institutional, and technological history of NASA's research related to commercial high-speed research which has been done over the past four decades. The other project was *Taming Liquid Hydrogen: The Centaur Upper Stage Rocket, 1958-2002*, by Virginia P. Dawson and Mark D. Bowles. This project explores the Centaur as a case study in the advance of technological knowledge. It discusses the nature of technological R&D and analyzes the role of technology transfer in the aerospace arena.

Michael H. Gorn's *Expanding the Envelope: Flight Research at NACA and NASA* won the AIAA's 2004 Gardner-Lasser Aerospace History Literature Award. Published in 2001 by the University Press of Kentucky, the book explores flight from kite and glider experiments to present day aeronautical research. The Gardner-Lesser award is presented annually by the AIAA for the best original contribution to the field of aeronautical or astronautical non-fiction historical literature published in the last five years that deals with the science, technology or impact of aeronautics and astronautics on society.

Steve Dick received the 2004 Pendleton Prize of the Society for History in the Federal Government for his new book, *Sky and Ocean Joined: The U.S. Naval Observatory, 1830-2000* (Cambridge University Press, 2003). The Pendleton Prize is awarded annually for a book produced by or for a federal history program that recounts some aspect of the federal government's history.

II. Reference Collection and Research Support

Information Requests

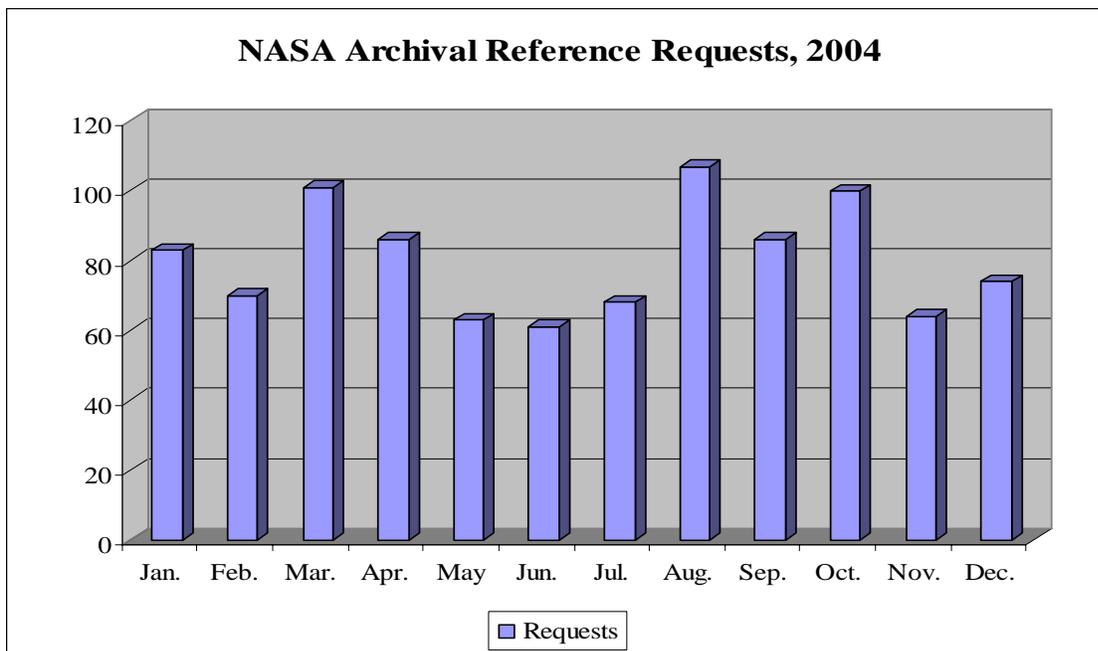
During calendar year 2004 NASA History Division archival personnel answered a total of 963 research requests from government, education, and private organizations on all manner of divergent research interests. Also during the year, the History Division provided

research services to approximately 414 on-site researchers using its collections. Table 1 displays the number of information requests handled by NASA History Division archival personnel during calendar year 2004.

With the advance of e-mail technology, querying the History Division has become easier than ever, and such queries represent a growing workload that must be met. We remain committed to providing quality, timely service for those seeking information about NASA's history, but the challenges of doing so are becoming increasingly difficult as the number of requests continue to rise.

While the History Division has been able to reduce the amount of time given to each information request through greater efficiency, the annual workload for information requests requires more than two full-time equivalent personnel. Since the History Division does not have these resources in-house, we have relied on student interns for some of this work, but the rise in the workload is a matter that requires continued attention if we are to meet the requirements of NASA.

TABLE 1



Research Visits

Beyond headquarters staff, the History Division hosted NASA researchers from the Aldridge Commission, Ames Research Center, Goddard Space Flight Center, Langley Research Center, Marshall Space Flight Center, and the Return to Flight Task Group. Local visitors to the History Division included researchers from Air and Space Magazine, American University, the Department of Homeland Security, the Export-Import Bank of the United States, George Washington University, the House Science Committee, Howard

University, NASA Watch, the National Air and Space Museum, the National Oceanic and Atmospheric Administration, Quest Magazine, the RAND Corporation, and the University of Maryland. Out of town visitors hailed from the Aerospace Corporation (California), the Atomic Testing Museum (Nevada), Carnegie Mellon University (Pennsylvania), Florida International University, Georgia Tech, Johns Hopkins University, Lawrence Livermore Laboratories (California), LeMoyne College and Syracuse University (New York), Lightworks Producing Group (New York), National Archives – Southwest Region (Texas), Rutgers University and Monmouth University (New Jersey), University of North Dakota, and the University of Wisconsin. Our foreign national visitors came from the Leichhardt Library in Australia, the University of Glamorgan in Wales, the University of Manchester, and the BBC in London.

Acquisitions

The NASA History Division received approximately 62 boxes of material from various sources during 2004. Archivists appraised the material for historical value and arranged and filed those items that were retained. The donations included:

- A CD of GSFC Telephone Directories, and an unpublished manuscript entitled “Vital Links: The First 25 Years of NASA's Space Tracking, Communications and Data Acquisition, 1958 - 1983,” by Alfred Rosenthal, each donated by a GSFC employee.
- .5 cubic foot of Augustine Committee material, 1990-91; 4 cubic feet of space shuttle and space station material, 1969-2001; 3 cubic feet of material on human and robotic exploration in the 1970s; 1 cubic foot of material on Mir/Phase 1 activities, including news clippings, press releases, Space Shuttle Readiness Reviews, and Shuttle-Mir updates, all donated by Space Operations.
- 2.5 cubic feet of telephone directories, personnel notices, Shuttle reports and other shuttle related material from a Space Operations retiree.
- .5 cubic foot of material on space power systems from the 1960s and also biographical information on a variety of individuals, donated by a National Air and Space Museum curator.
- 3 cubic feet of material from the HQ Library vertical file on a variety of topics including satellites, planets, commercialization of space, space policy, spacesuits, space shuttle, and space station, 1979-92.
- Photo album of early Wallops Flight Facility activities, presented to the former AA for the Office of Tracking and Data Acquisition, Gerald Truszynski and donated by Mr. Truszynski.
- .5 cubic foot of Dan Goldin speeches from Public Affairs.

- 4 cubic feet of space station material from author, Dennis Jenkins. This collection includes proposals, reports, design documents, letters, memos and other materials from the 1960s and 1970s.
- 2 cubic feet of *Space World* magazines, 1961-65; and 12 cubic feet of SETI and Astrobiology material donated by the NASA Historian.
- 4 cubic feet of files on the International Science and Engineering Fair, 1961-94; orbiter naming program, 1987-92; Education Division History, 1961-71; and University Affairs Program, 1960-2003, from Office of the Chief Education Officer.
- John Victory scrapbook, dated 1915, from an Ames Research Center employee.
- 5 cubic feet of files on Apollo and HST costs from Office of the Chief Financial Officer.
- 10 cubic feet of files and books on ISS from Office of the Administrator.
- 14 cubic feet of X-33, X-34, space transportation studies, contractor PAO, and NOVA materials, ca. 1996-99, from Aeronautics Research.
- .5 cubic foot of old Spinoff magazines; a CD entitled “A Renewed Spirit of Discovery” re President Bush’s Vision for Space Exploration Announcement at NASA HQ, 2/04; and a CD of public proceedings from NASA-sponsored International Workshop on Creating New and Sustainable Space Exploration, held in Washington DC, 11/04, all donated by Office of External Relations.
- A larger binder containing former AA Alan Ladwig’s testimony before Congress in 1997 on strategic management and Government Performance and Results Act from Mr. Ladwig.
- 6 cubic feet of subject files on space history from former History Division editor Louise Alstork.
- A CD of documents re two National Historic Landmarks at JSC from the Planning and Integration Office at JSC.
- One large 3 ring binder containing a “Record of NASA Space Missions since 1958,” compiled by Alfred Rosenthal for GSFC in 1982, donated by the Office of Biological and Physical Research.
- 1 cubic foot of materials related to the Spaceborne Imaging Radar (SIR-C) instrument flown on various Shuttle missions from the Office of Earth Science.
- And a number of VHS tapes requested by the History Division from NASA TV. Topics include Cleveland Aviation History Conference, 11/03; visit of President Bush to NASA HQ, 1/04, and Administrator O’Keefe’s press conference immediately following his visit;

“NASA Update with the Administrator” held in the auditorium the day after President Bush’s visit; ’05 Congressional budget briefing; anniversary of the Columbia disaster, 2/04; memorial service for Apollo 1, Challenger, and Columbia crews; proceedings of the President’s Commission on Moon, Mars, and Beyond; House and Senate Science Committee hearings on the President’s new space vision, 3/04; NASA Update on Transformation; Press Conference on Transformation; Tribute to Ronald Reagan; Apollo 11 35th Anniversary events held at NASM, 7/04; Search for Life in the Universe which aired on CNN, 8/04; a recording of the Administrator’s Symposium on Risk and Exploration held in Monterey, CA, 9/04; and a John Young Tribute held at NASM, 12/04.

Other Processing Activities

During 2004 the History Division staff were busy processing (arranging, describing, cataloging) a number of collections, some from our backlog and others that were received recently. These included:

- The White House Collection
- Files on Space Shuttle and Space Station from various sources, including the Office of Space Operations and author Dennis Jenkins
- Files from the Office of Space Sciences and Applications
- Aeronautical materials and training documents from Emory Riddle University in FL
- University Affairs files
- International Space Year Files, 1982-1993
- Budget Office files on Apollo and HST costs
- Files on Search for Extraterrestrial Intelligence (SETI) program
- Office of Management files
- HQ Contingency Action Team files
- Subject files of former History Division editor Louise Alstork
- Files donated by a retiree in the Launch Services Office
- Office of the Administrator chronological correspondence files, 1962-1999

In total, the History Division staff processed 93 cubic feet of files, making these materials more accessible to our visitors.

NASA History Division Online Catalog (Database)

The current database began operating in May 1998 and has begun to alleviate the press of space in the NASA History Division as we image and store electronically discreet parts of the NASA Historical Reference Collection. Planning began the previous year on a long-term effort to scan and create in an electronic format a database of historically significant, one-of-a-kind documents from a paper collection maintained only in the NASA Historical Reference Collection. This project accomplishes several tasks:

- Preserves unique records of the agency that are critical to understanding the agency and its historical development;
- Allows the disposition of paper originals to the National Archives where they belong in keeping with the Archive's mission of maintaining a record of the activities of the federal government;
- Frees space within the NASA History Division for its continued collection of the historically significant documents of the agency; and
- Makes these historical materials available to a much wider body of researchers from NASA, other government agencies, the academic community, and the public.

In 2004, we placed several major collections in electronic form (online or on CD-ROM), including:

- 5 cubic feet of Office of Education chronological correspondence files, 1993-98
- 20 cubic feet of Administrator's Office chronological files, 1977-1999
- 3 cubic feet of Office of Public Affairs chronological files, 1989-2000
- 5 cubic feet of Office of Life and Microgravity Sciences and Applications chronological files, 1990-2000

More specifically, during this year we scanned and checked into the DMS 18,203 items, creating 455 cataloging records describing these documents. Just over 1,275 database records describing our non-scanned holdings were updated, and 133 new cataloging records were created as materials and were subsequently added to the reference collection. Through these efforts we have succeeded in making NASA historical materials more widely available to NASA staff and visitors who come from outside the agency.

III. Oral History Projects

Recording, transcribing, and permanently accessioning in the NASA Historical Reference Collection the recollections of NACA/NASA personnel has been one of the most important activities undertaken by the NASA History Division since its inception in 1959. Many NASA oral histories originated when historians interviewed participants to obtain firsthand information to facilitate writing their volumes in the NASA History Series. Other oral histories can be more properly categorized as exit interviews. NASA Historical Reference Collection holds over 2,000 oral histories on a widely divergent set of individuals. They include oral histories focusing on all the major projects of the agency, organizational culture, engineering practice, program management, aerospace medicine, and other specialized topics.

Other NASA centers also have large collections of oral histories. The Johnson Space Center, for example, has a collection of over 2,000 oral histories. While the majority of the oral histories available from NASA have been conducted during the course of writing specific historical works, increasingly so as time progresses, the agency has undertaken oral history for its own sake as a means of preserving knowledge. Often supporters of this effort have been motivated by the realization that the first generation of agency officials are passing

from the scene and that it is important to capture as much of their knowledge as possible. Accordingly, several discrete projects have been undertaken, and some are still in progress, recording the recollections of key officials.

Often these oral history efforts record the entire careers of individuals covering a broad spectrum of activities. They have a similarity to the oral histories of Columbia University's Oral History Research Office and to the senior officer oral history programs of the various armed services. In every case these works are transcribed, edited, and placed in the history collections of the agency. They often also are copied and find permanent retention in various presidential libraries and university special collections departments.

Hubble Space Telescope

At Administrator O'Keefe's request, key players were interviewed regarding the decision to cancel the final servicing mission (SM-4) of the Hubble Space Telescope. Interviewees included **Sean O'Keefe, Bill Readdy, Ed Weiler, Fred Gregory, Brian O'Connor, Michael Greenfield, Steven Isakowitz, Eric Smith, Jennifer Wiseman, Michael Moore and Frank Ceppolina**. A history of the decision was written using these interviews and other documents. A shorter policy document was written with Harry Lambright (Syracuse University), with the idea that it would be used as a case study for management training.

Administrators Oral History Project

Started in 2001, this effort gathers information and knowledge from individuals who have served in major administrative roles for the Agency regarding organizational culture, methodology, program management, decision-making rationales, and details of events that occurred during that person's tenure. An ongoing project, the following oral histories have been completed.

James Beggs – NASA Administrator, 1981-1985; **Harold Finger** – NACA Engineer and Director, Nuclear Systems, NASA Headquarters, 1958-1967; **Edward A. Frankle** – General Counsel, NASA Headquarters, 1988-2001; **Arnold Frutkin** – NASA Assistant Administrator for International Affairs, 1963-1978; **Carolyn Huntoon** – NASA Center Director, Johnson Space Center, 1994-1995; **Dr. Wesley Huntress** – NASA Associate Administrator of the Office of Space Science, 1993-1998; **Dr. Charles Kennel** – NASA Associate Administrator for Mission to Planet Earth, 1994 – 1996, and Chair of the NASA Advisory Committee; **Courtney Stadd** – Former NASA Chief of Staff and White House Liaison; and **J.R. Thompson** – NASA Deputy Administrators, and Director Marshall Space Flight Center, Alabama, 1986-1989.

Among those completed or in progress are interviews with **Joe Rothenberg** – NASA Associate Administrator, Office of Space Flight, 1998-2001, and Director of Goddard Space

Flight Center (1995-1998). Many of the Hubble Space Telescope interviews undertaken in 2004 (see above) fall into this category.

Oral History Projects at Johnson Space Center:

The oral history project team begins its ninth year at the Johnson Space Center History Office with a new project for the NASA Headquarters History Office. The team began documenting the history of Micro-Electromechanical Systems (MEMS) to identify and highlight the societal, scientific, and technological benefits of this technology. The team conducted interviews at Ames Research Center with researchers associated with the MEMS project more than thirty years ago.

The team gave a presentation at the Oral History Association's annual conference, held 29 September to 3 October 2004. In the presentation, "The Story After: Recovering the Space Shuttle Columbia," the team explained how it approached the task of conducting a "real-time" interview program while people recovered remnants of the orbiter and searched for clues of its demise. The group discussed the challenges of rapidly implementing a new oral history program, of conducting interviews in the midst of tragedy, and how the information and interviews gathered may benefit future responses to national disasters.

NASA Johnson Space Center has maintained a History Portal web site since September 2002. The website contains links to the database of the JSC History Collection. Also included on the website are transcripts of all the oral histories conducted for the JSC Oral History Project, as well as the following oral history projects sponsored by the NASA Headquarters History Office: *Administrators*; *Herstory*; *Aviatrix Pioneers*; *Ballistic Missile Development Pioneers*. The website, www.jsc.nasa.gov/history, is updated on a quarterly basis with additional oral history transcripts.

NASA Career Oral History Project:

Since 1994, the NASA History Office has supported oral history interviews documenting significant aspects of NASA's spaceflight and other major programs. More than one hundred interviews have yielded at least 500 hours of recorded material. Interviewees have included: Jimmy Carter, Aaron Cohen, Charles Donlan, Lennard Fisk, James Fletcher, Gerald Ford, Robert Frosch, Noel Hinners, John Hodge, George Low, Hans Mark, Story Musgrave, Dale Myers, Thomas Paine, Frank Press, Robert Seamans, James Webb, and Casper Weinberger.

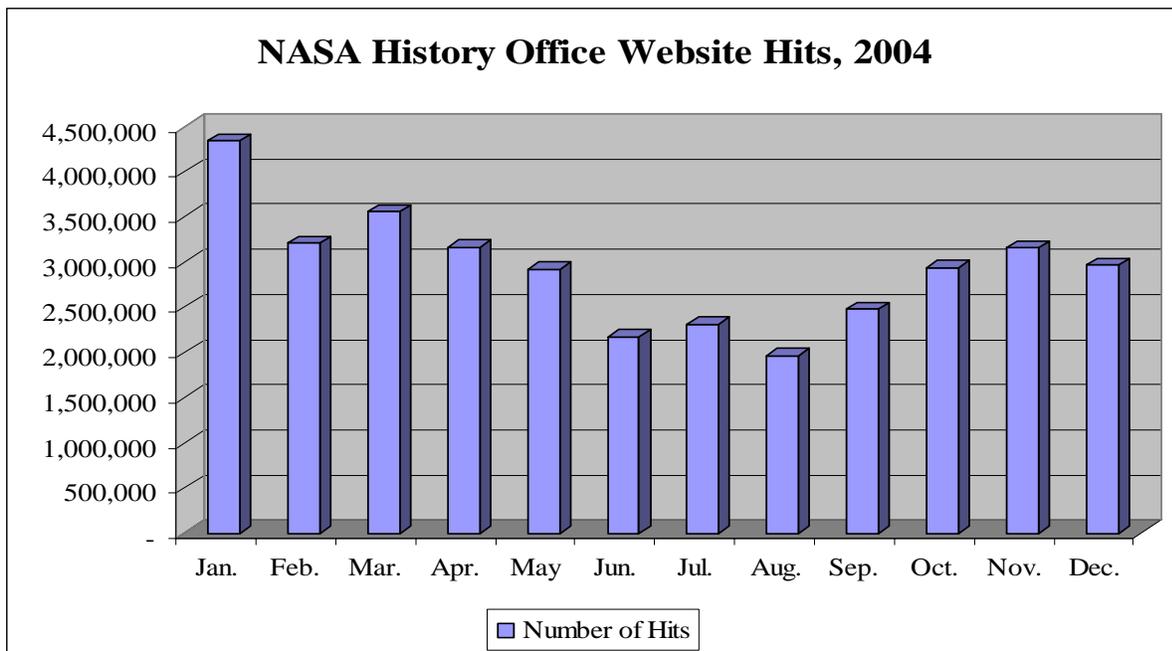
Career oral histories conducted in 2004 at the Johnson Space Center included interviews with Charles F. Bolden, Guion "Guy" S. Bluford, Jr., Burton G. Cour-Palais, John O. Creighton, Brian Duffy, Frederick H. Hauck, John W. Holland, Neil B. Hutchinson, Bryan D. O'Conner, George D. Nelson, William E. Rice, Jerry L. Ross, and Fred D. Rowell.

In 2004, oral history interviews were conducted at Kennedy Space Center (KSC) with individuals who have contributed to the center's history. Completed interviews include those of Virginia Whitehead, Launch Site Support Manager for Payloads, and Roy Johnson, Ground Support Engineer. The Whitehead transcript and other interviews conducted in earlier years are available at <http://www.ksc.nasa.gov/kscoralhistory/>

IV. NASA History Web Site

For the last several years the NASA History Division has been working to place as much information as possible online in an easy to navigate World Wide Web site that will be useful to all. During 2004, the NASA History Division substantially increased its electronic resources, especially on the World Wide Web. Our main page has continued to be <http://history.nasa.gov>. The generic history office e-mail account for public information requests is histinfo@hq.nasa.gov. In addition to being one of the largest NASA web sites, the NASA History site continues to be one of the most popular NASA Headquarters sites, as seen from Table 2, which shows the number of hits to the History web site per month.

TABLE 2

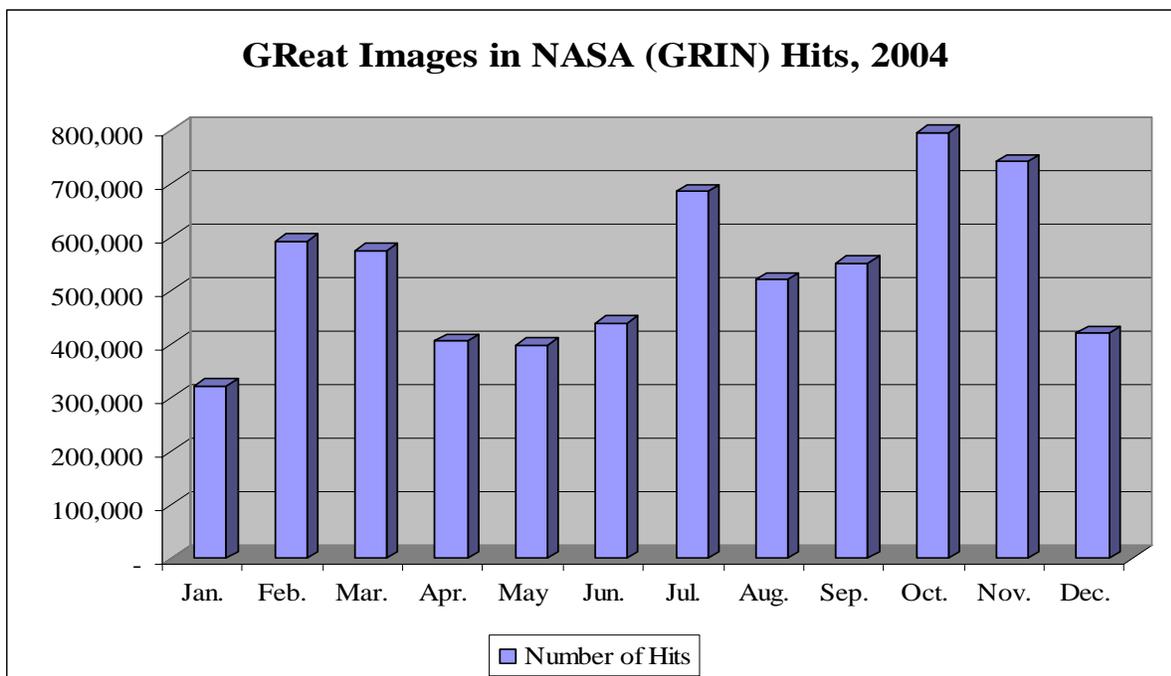


Throughout the year there were 35,163,576 hits on the NASA History web site. During the last year, we added fifteen significant, new web pages or sites. While some of these were put together and/or hosted at field centers or other NASA offices, outside volunteers take the credit for most of these new sites. These volunteers have scanned and formatted for the web a number of book-length publications that are typically out of print and thus not easily found in hard copy elsewhere. NASA History interns and the NASA

Headquarters printing and design office also made significant contributions to our web presence.

The NASA History Division continues to build its online resource for historical photos. GReat Images in NASA (GRIN) is online at <http://grin.hq.nasa.gov> and features over 1,000 historically significant black and white and color images in four resolutions ranging from thumbnail to a high resolution that is suitable for publishing. Public users may download any of these images without charge. While other somewhat similar photo databases are online, the specific format of this one is rather unique and has been well received, receiving 6,448,609 hits this year. We hope to add many more images to GRIN in the future. Table 3 illustrates the monthly GRIN hit breakdown for 2004.

TABLE 3



Online History Publications

One Giant Leap for Mankind: the 35th Anniversary of Apollo 11, authored by Michael Makara and designed by James Gitlin. The site is available at <http://history.nasa.gov/ap11-35ann/index.htm>. This informative web site commemorates the efforts and success of the dedicated people that worked on Apollo 11.

Exploring the Unknown: Selected Documents in the History of the U.S. Civil Space Program, Volume VI: Space and Earth Science, edited by John M. Logsdon with Stephen J. Garber, Roger D. Launius, and Ray A. Williamson. The web version of the book is now available at <http://history.nasa.gov/SP-4407/vol6/vol6.pdf>. This volume covers space history and space

policy in four thematic chapters. Essays discuss the solar physics from space, space physics, life sciences in space, and the Earth Observing System.

Journey in Aeronautical Research: A Career at NASA Langley Research Center, by W. Hewitt Phillips, Monograph in Aerospace History 12, 1998, is online at <http://history.nasa.gov/monograph12/monograph12.htm>.

The SKYLAB EREP Investigations Summary (NASA SP-399, 1978) is online at <http://history.nasa.gov/SP-399/sp399.htm>.

Remembering the Columbia (STS-107) is a comprehensive site containing information about the STS-107 mission accident, recovery efforts, and the investigation. This document is at <http://history.nasa.gov/columbia/index.html>. The site contains numerous documents and images, including information from the former Columbia Accident Investigation Board web site.

Adventures in Research: A History of Ames Research Center, 1940-1965 (NASA SP-4302, 1970), edited by Edwin P. Hartman, is located at <http://history.nasa.gov/SP-4320/sp4302.htm>

The Space Exploration Initiative (SEI) web site displays a collection of materials available from the History Office about President H.W. Bush's SEI program. The site is at <http://history.nasa.gov/sei.htm>.

The Vision for Space Exploration site contains information collected by the history office since the 16 January 2004 announcement by President George W. Bush. It is at <http://history.nasa.gov/sep.htm> on-line.

Humans to Mars: Fifty Years of Mission Planning, 1950-2000, by David S. F. Portree (NASA SP-2001-4521). This is the full pdf version of monograph 21 with all the graphics and the text search feature. It is at <http://history.nasa.gov/monograph21.pdf> on-line.

The History of the XV-15 Tilt Rotor Research Aircraft: From Concept to Flight, by Martin Maisel, Demo J. Giulianetti, and Daniel C. Dugan (NASA SP-2000-4517). This is the full pdf version of monograph 17 with all the graphics and the text search feature. It is at <http://history.nasa.gov/monograph17.pdf> on-line.

Wright Brothers Chronology (NASA SP-2003-4532), by Arthur Renstrom, is the pdf version of monograph 32. This reissue of a classic reference work on the Wright brothers is a companion to a similar bibliography that Renstrom also compiled and the NASA History Office also reprinted in 2002 (Monograph #27). It is at <http://history.nasa.gov/monograph32.pdf> on-line.

Wright Brothers Bibliography (NASA SP-2002-4527), by Arthur Renstrom, is the pdf version of monograph 27. This reissue of a classic reference work on the Wright brothers is a companion to a similar bibliography that Renstrom also compiled and the NASA History Office reprinted in 2003 (Monograph #32). It is at <http://history.nasa.gov/monograph27.pdf> on-line.

Atmosphere of Freedom: Sixty Years at the NASA Ames Research Center, by Glenn E. Bugos (NASA SP-4314, 2000), is at <http://history.nasa.gov/SP-4314/sp4314.htm>.

Searching the Horizon: A History of Ames Research Center 1940-1976, by Elizabeth A. Muenger (NASA SP-4304, 1985), is at <http://history.nasa.gov/SP-4304/sp4304.htm>.

The Impact of Science on Society, by James Burke, Jules Bergman, and Isaac Asimov (NASA SP-482, 1985) is available at <http://history.nasa.gov/sp482.pdf>. The book discusses the role of space science and computers in society.

American X-Vehicles: An Inventory-X-1 to X-50 (SP-2003-4531) by Dennis R. Jenkins, Tony Landis, and Jay Miller is available at <http://history.nasa.gov/monograph31.pdf>.

Together in Orbit: The Origins of International Cooperation in the Space Station, by John M. Logsdon (NASA Monograph in Aerospace History, Number 11, 1998), is available at <http://history.nasa.gov/monograph11.pdf>. This well-written monograph chronicles the evolution of international cooperation in the International Space Station program.

Managing the Moon Program: Lessons Learned from Apollo, moderated by John M. Logsdon (Monograph in Aerospace History, Number 14, 1999), is available at <http://history.nasa.gov/monograph14.pdf>. This informative monograph details the management lessons learned from the Apollo program.

Hypersonics Before the Shuttle: A Concise History of the X-15 Research Airplane, by Dennis R. Jenkins (Monograph in Aerospace History, Number 18, 2000), is available at <http://history.nasa.gov/monograph18.pdf>.

Why Man Explores, by James Michener, Norman Cousins, Philip Morrison, Jacques Cousteau, and Ray Bradbury (NASA EP-125, 1976), is available at <http://history.nasa.gov/EP-125/ep125.htm>. This transcript discusses rationales of space exploration.

V. Other Activities

Professional Activities

Members of the History Division staff were involved at several levels in professional activities germane to aerospace history during 2004.

Chief Historian Steven Dick presented papers on the American transit of Venus expeditions at the American Astronomical Society meeting in Atlanta, at a GSFC Scientific Colloquium in January, and at the National Museum of American History in May. In June, on the occasion of the first transit of Venus since 1882, he presented a paper and observed the event during a meeting of the International Astronomical Union in the UK. He authored an article on the subject in the May, 2004 issue of *Scientific American*. In March he

presented papers on exploration and on societal impact of astrobiology at the Astrobiology Science Conference held at Ames Research Center. He presented numerous other papers on NASA's role in astrobiology at meetings in Seattle, Flagstaff and GSFC, among other venues. He presented a lecture on "Why We Explore" to informal educators, such as science center and planetarium directors, at Kennedy Space Center on 8 November 2004. The presentation was for a NASA Office of Education-NASA Explorer Institute designed to improve interactions between NASA and informal education institutions. Also on the theme of exploration, in October he began a series of monthly essays on "Why We Explore," posted on the nasa.gov website. In September he participated in the Administrator's Symposium on "Risk and Exploration," and began work on the proceedings of the meeting, which the NASA History Division will publish. He attended the meeting of the International Astronautical Congress in Vancouver. In December he ended his tenure as President of the Philosophical Society of Washington.

Jane Odom attended sessions on privacy, digital preservation, and standards development, among other things, at the Society of American Archivists' annual meeting in Boston in early August. She attended the book signing of authors Virginia P. Dawson and Mark D. Bowles for *Taming Liquid Hydrogen* in Cleveland Ohio on 9 June. She also presented a paper describing the NASA History program at the 19th Annual Freedom of Information Act Conference in Alexandria, Virginia, on 10 June.

Steve Garber was profiled in the spring 2004 edition of NASA's ASK magazine for project management. In March, Steve attended meetings sponsored by several groups: the Society for the History in the Federal Government, the Organization of American Historians, the American Astronautical Society, and NASA's Academy of Program and Project Leadership. Steve is participating in a part-time science and technology policy fellowship program run by the Commerce Department. This ComSci program provides a small group of people from executive branch agencies the opportunity to hear from top-level speakers on a variety of science and technology topics and to visit field sites throughout the Washington, D.C., region.

NASA History Program Review, 2004

Since early in the history of NASA, the Agency's History Program began holding periodic meetings with our center history points-of-contact and with a group of outside scholars and aerospace professionals to assess the state of the program. These annual reviews have been exceptionally important in helping to shape the direction and even the nature of the NASA History Program. It is an important opportunity to draw together the resources working on historical issues at NASA, and to reflect on the nature of the program and plan for the future.

The NASA History Division held its annual history program review at Goddard Space Flight Center on 27-29 April. Staff from the NASA History Division, history points of contact from the various Field Centers, and informal outside advisers attended this meeting

and discussed the various history activities under way and planned throughout the Agency. The agenda for this program review included:

- An overview of the NASA history program
- History publications status report
- Plans for upcoming events and conferences
- Discussion of FOIA and export control issues
- A forum on ways to improve center and headquarters history programs

Program review attendees also toured the Goddard Space Flight Center, the History Division and the library at NASA Headquarters, and the National Air and Space Museum's Udvar-Hazy facility. At Goddard, conference participants viewed the clean room where the Hubble Space Telescope was assembled and tested. Participants also viewed a centrifuge, vibration chamber, and a full-scale Space Shuttle mock-up. Former NASA Chief Historian Roger Launius joined the group for the tour of the Udvar-Hazy Center.

VI. Personnel

New Historian

Glen Asner joined the NASA History Division as a permanent full time civil servant in December. Glen is pursuing a Ph.D. in history at Carnegie Mellon University. His dissertation, slated for completion in 2005, explores the influence of government policies on the organization of corporate research during the Cold War. His most recent publications include: a brief article in *Technology and Culture* on the Hagley Museum and Library's archival collection; an essay on "The Organization of Science and Technology," in Routledge's *Encyclopedia of 20th-Century Technology*; and a paper based on a presentation he gave at the 123rd Nobel Symposium in Stockholm, Sweden, titled, "The Linear Model, the U.S. Department of Defense, and the Golden Age of Industrial Research," in *The Science-Industry Nexus: History, Policy, and Implications*, Karl Grandin et al., eds. Prior to joining NASA, Glen worked as a contract historian on projects for the U.S. Department of Defense, the U.S. Department of Energy and the Hagley Museum and Library. Glen is interested in a wide range of topics in the realm of space history, including history of the aerospace industry, the relationship between NASA and the military, and the social and cultural implications of spaceflight and space technologies.

Interns

During 2004, the NASA History Division was fortunate to have several excellent interns. Joshua Eli Margolis, a sophomore from Penn State majoring in history, served as an intern in the History Division in the spring. Claire Rojstaczer, a junior studying Science, Technology, and Society at Pomona College in California, interned here for the spring semester and during the summer. She assisted Ed Goldstein in Code P by finding some photos that the printing and design office used to create a very attractive lobby exhibit

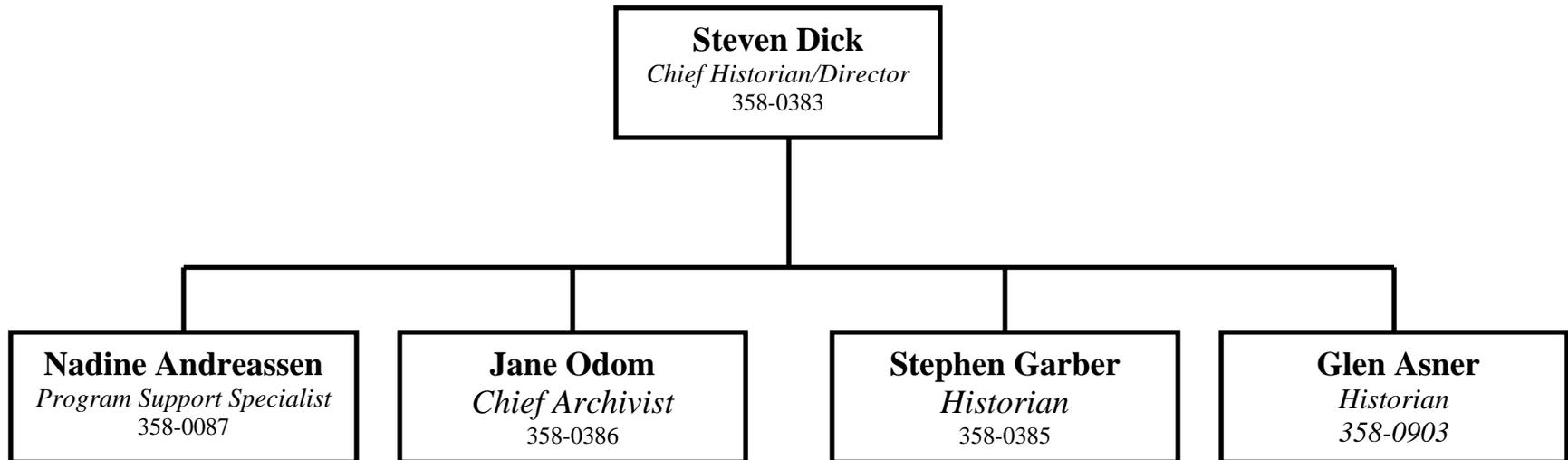
devoted to NACA contributions to World War II. Claire also helped prepare *Exploring the Unknown*, volume 6, and *the Wind and Beyond*, volume 2, for publication. Michael Makara, a history and political science student from Virginia Tech, helped to edit a number of manuscripts and CDs during his summer internship.

Dr. Bonni Cermak, a professional historian, served on a four-month Presidential Management Fellow rotation from the Department of Veterans Affairs in the spring. Stay-in-School student Jennifer Troxell helped to prepare numerous manuscripts for publication, including a monograph focusing on the management of the NEAR spacecraft project. She coordinated the 2002 and 2003 annual *Aeronautics and Space Report of the President* and compiled the History Division newsletter, *New & Notes*. Late in the year she moved to another Division of the Office of External Relations.

Three new interns started in the NASA History Division in September. Giny Cheong, a master's student at George Mason University, worked on the history web site and helped to prepare volume I of Boris Chertok's *Rockets and People*. Mike Peacock, an undergraduate at the University of Pennsylvania, divided his work between the History Division and the NASA Office of Public Affairs. He helped to facilitate wider distribution of a Jim Polaczynski documentary about the NASA Plum Brook Station Reactor Facility entitled *Of Ashes and Atoms*. Rebecca Anderson, a junior at the University of California at Davis, helped to prepare manuscripts by W. Henry Lambright and James R. Hansen for publication.

History Division December 2004

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