

FROM THE CHIEF HISTORIAN



The concepts of “discovery” and “exploration” are frequently found throughout space literature, most recently in the new Vision for Space Exploration, billed as “a new spirit of discovery,” enunciated by President Bush in January and published in February of this year. Given my position as Chief Historian, you will not be surprised that my answer to the question “Should we explore?” is “Yes!” History offers deep historical context for answering the question “Should we explore?” Historians have distinguished three great Ages of Exploration—the First Age in the 15th and 16th centuries, associated with Prince Henry the Navigator, Columbus, Magellan, and other European explorers; the Second Age in the 18th and 19th centuries, characterized by further geographic exploration such as the voyages of Captain Cook, underpinned and driven by the scientific revolution; and the Third Age beginning with the International Geophysical Year and Sputnik, primarily associated with space exploration.

The United States both affected and was affected by the Second and Third Ages of Exploration, but the important point is that each of these ages of exploration was the product of specific decisions of certain cultures: the Europeans (and briefly the Chinese) for the First Age, the Europeans and Americans for the Second Age, and the Soviet Union—soon joined by the United States and a few other countries—for the Third Age. As historian Stephen J. Pyne has argued, “Exploration is a specific invention of specific civilizations conducted at specific historical times. It is not . . . a universal property of all human societies. Not all cultures have explored or even traveled widely. Some have been content to exist in xenophobic isolation.”

There is a value judgment in that last sentence—that xenophobia and isolation are bad. But that they are in

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HISTORIANS AND PROJECT MANAGERS LEARNING FROM EACH OTHER

By Steve Garber

In technical fields such as aviation and space, there is often a temptation to get overly focused on the technologies themselves. This practice can lead to “buff” history in which the technologies are glorified without any analysis. Yet, as James Webb, NASA’s Administrator during most of the 1960s, liked to remind people, NASA’s real challenge is managing people, not hardware. In fact, management techniques themselves may be more important tools than any engineering hardware. Although the physical tools of engineering indeed change over time, good management itself (some might say leadership too) is one tool that will never go out of style. Historians can help project managers by providing perspectives on how management tools have worked in the past.

There are a number of specific ways in which project managers can benefit from working with historians. Perhaps most importantly, when making daily decisions, most people think about past events and practices without consciously using history. Historians can help managers by making these thought processes more explicit. All of us use implicit knowledge of the past to some extent, but thinking about specific historical similarities and differences can help us draw relevant analogies and reject invalid assumptions. Historical data can improve decision-making when appropriate analogies are drawn.

Historians can also provide useful contexts for evaluating management situations. Again, one needs to ask whether something similar has happened before or whether there is something significantly new about a particular problem.

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fact bad for society is borne out by history. The case most often cited for a societal decision not to explore—with generally recognized bad effects—is Ming China in the 15th century. You will find this case, for example, made in Bob Zubrin’s books on Mars and, before that, made by NASA Administrator James Beggs. Is it hype, or is it history? The historical facts are quite clear. Historian Daniel Boorstin—the recently deceased former Librarian of Congress—pointed out that in the early 15th century, the biggest Chinese ships were up to 10 times the size of Columbus’s later in the century. While Columbus had 17 ships and 1,500 men on the largest of his four expeditions, the Chinese Admiral Zheng He had 317 ships and 27,000 crew members on the first of his six expeditions. Although Chinese state revenues were probably 100 times Portugal’s, the Ming emperors had other priorities after the 1430s, and it was Portugal and other European countries that led the way in exploration. As Boorstin noted, “When Europeans were sailing out with enthusiasm and high hopes, landbound China was sealing her borders. Within her physical and intellectual Great Wall, she avoided encounter with the unexpected . . . Fully equipped with the technology, the intelligence, and the national resources to become discoverers, the Chinese doomed themselves to be discovered.”

In their recent world history, historians J. R. and William McNeill come to the same conclusions, and historians in general tend to agree that the Chinese chose poorly in the mid-15th century. By the 1470s, the McNeills wrote, even the skills needed to build great ships were lost. Boorstin called the withdrawal of the Chinese into their own borders, symbolized by the Great Wall of China that took its current form at that time, “catastrophic . . . with consequences we still see today.” The parallel with the space-exploration choices now before us should not go unnoticed. Someday, historians will be writing about whether we chose wisely, both in our decision to explore and in how we funded the exploration.

The current debate over human exploration of the Moon, Mars, and beyond illustrates the choices we face. I am struck that opinion is deeply divided into two worldviews: on the one hand, those who feel strongly that we need to address our problems at home, that space exploration is a waste of money—and on the other hand, those who want to explore. Proponents of the first worldview say that we cannot afford to explore; those of the latter answer that we cannot afford *not* to explore. A study of how these two groups came to their respective opinions, I think, would go a long way toward illuminating the underlying assumptions of our present society and toward mapping our future.

The case from 15th-century Ming China is admittedly suggestive and not predictive. History does not predict, but it does suggest the lesson that pulling back from exploration may be tantamount to letting a society wither. In his essay “Space: The Third Great Age of Discovery,” historian Pyne writes that “I find it inconceivable that this country—itsself the continuing product of discovery, with its own vital creation myths inextricably entangled with the history of geographic discovery and expansion—I find it inconceivable that such a country would surrender its exploring tradition. This is a frankly nationalist appeal. The United States is not predestined to journey to the stars: we will have to choose that destiny”

I would add only that this choice for space exploration does not have to be a nationalist appeal. Since Pyne wrote those words 15 years ago, we have witnessed a striking example of international cooperation in the International Space Station, which, one could argue, is worth the money for that alone. Space exploration to the Moon, Mars, and beyond—

both robotic and human—is going to happen; it is only a question of when. Precisely because we are at a time when there are so many problems in the world, I hope the choice is to move forward into space with all the vigor we can summon while taking into account the consequences and using the lessons of history. I think it is not just naïve optimism to say that such a choice, whether national or international, might just lift us out of our current dilemma by focusing on a goal that can unite humanity rather than divide it.

Steven J. Dick

These remarks are an abridged version of a paper given on June 21 at the Symposium on Space Exploration and International Cooperation, organized by the Office for Science and Technology of the Embassy of France in the United States, as well as the Space Policy Institute, Elliott School of International Affairs of The George Washington University.

Historians and Project Managers Learning from Each Other (continued)

Having a broad base of knowledge on which to draw helps us see patterns, rather than just individual leaves from many trees in a forest.

In addition, we can and should learn from both our successes and our failures. Historians are trained to parse out the many factors that contribute to a project's outcome. Historians can analytically separate the wheat from the chaff and critically challenge our assumptions about why something occurred the way it did. NASA has certainly had its share of high-profile disasters, as well as stunning achievements, but neither the accomplishments nor the tragedies were dictated by fate. It may be more comfortable to think that our accomplishments are due solely to hard work and our failures to bad luck, but each of these assumptions is equally misguided.¹ We should certainly not shy away from tackling difficult or uncomfortable topics. Truly understanding what went wrong in the *Columbia* STS-107 accident, for example, is the only way that we can hope to prevent future accidents in the Space Shuttle program.

Over the past two years or so, the NASA History Office has begun collaborating more closely with Dr. Ed Hoffman and the NASA Academy for Program and Project Leadership. In particular, we are working together to publish a book in the NASA History Series that Ed wrote with Alex Laufer and Todd Post. This book, which has the working title *Shared Voyage: Learning and Unlearning from Remarkable Projects*, is composed of four aerospace case studies. It utilizes an innovative “storytelling” approach in which the authors interview project managers and let them tell in their own words what went right and wrong on their projects. This approach has yielded a highly readable manuscript that will soon be a book. *Shared Voyage* also features a very insightful foreword from Ron Haifetz, a giant in the field of leadership and management. We hope and expect that both historians and project managers will benefit from reading this forthcoming book and that it will serve as the basis for other forms of innovative collaboration between our two communities.

¹ One of the themes of Asif Siddiqi's *Challenge to Apollo: The Soviet Union and the Space Race, 1945–1974* (NASA SP-2000-4408), a sweeping treatment of the Soviet space program, is that we should not presume that because the Soviets effectively lost the space race of the 1960s, this was preordained by inferior hardware or management techniques. Although the Soviets' approach to human space exploration has been very different from that of the United States, each has had its shares of triumphs and failures.

TRANSFORMATION AT NASA

By Jennifer L. Troxell

On 16 June 2004, the President's Commission on Implementation of United States Space Exploration Policy, also known as the Aldridge Commission, released its report to the public. The 60-page document, entitled *A Journey To Inspire, Innovate, and Discover*, was result of a 120-day study, commissioned by President George W. Bush in a 27 January 2004 executive order. The Commission was charged with examining and making recommendations for implementing the Vision for U.S. Space Exploration (hereafter the Vision), announced by President Bush at NASA Headquarters on 14 January 2004. During the study, five public hearings were held, 96 individuals from various backgrounds testified, and over 6,000 written inputs were submitted.¹ The complete report may be viewed at http://history.nasa.gov/aldridge_commission_report_june2004.pdf on the Web.

The Aldridge Commission endorsed the Vision in its report, stating, "The long-term, ambitious space agenda advanced by the President for robotic and human exploration will significantly help the United States protect its technological leadership, economic vitality, and security."² The Commission's report discusses the strategic management, policy, and communication changes required to position the United States to return to the Moon and continue on to Mars. It emphasized that for the Vision to be successful, it must be sustainable, affordable, and credible.³ The Commission made 8 findings and 15 recommendations for the pursuit of the Vision for U.S. Space Exploration.

Commission Findings and Recommendations

The Commission found that the Vision should be "managed as a significant national priority" and should be supported by the President, Congress, and the public.⁴ To that end, the Commission called for the establishment of a permanent Space Exploration Steering Council to "develop policies and coordinate work by its agencies to share technologies, facilities, and talent with NASA to support the national space exploration vision."⁵ The council could assist the coordination of NASA, the Department of Defense, the Department of Commerce, the Department of Energy, the Department of State, and other agencies to integrate any scientific discoveries that could contribute to the Vision and work to improve regulations governing the development of potential technologies.

The Commission found that in order to implement the Vision, NASA needed to fundamentally change its "relationship to the private sector, its organizational structure, business culture, and management processes."⁶ To do so, the Commission recommended an increase in the presence of private industry in space operations; a structural transformation of NASA; reconfiguration of NASA Centers into Federally Funded Research and Development Centers (FFRDCs); creating within NASA a technical advisory board, an

¹ *A Journey To Inspire, Innovate, and Discover* (Washington: Government Printing Office, 2004), 2. This is the report of the President's Commission on Implementation of United States Space Exploration Policy.

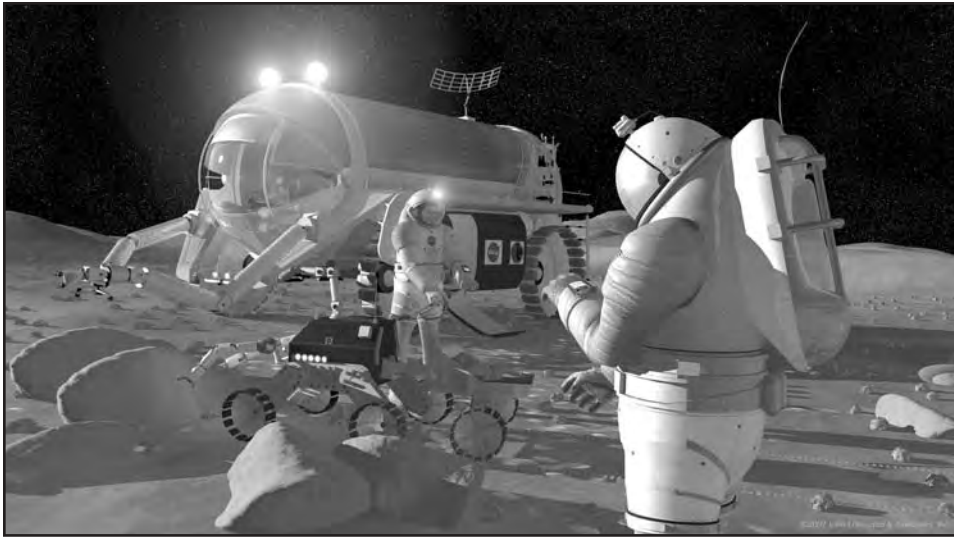
² *Ibid.*, 6.

³ *Ibid.*, 13.

⁴ *Ibid.*, 6.

⁵ *Ibid.*

⁶ *Ibid.*, 7.



An artist's rendering of crew members conducting remote operations with a pressurized rover on the lunar surface.

independent cost-estimating organization, and a research and technology organization; and the adoption of personnel and management reforms.

The Commission also found that “the successful development of identified enabling technologies will be critical to attainment of exploration objectives within reasonable schedules and affordable costs.”⁷ Special project teams, one for each enabling technology, were recommended by the Commission to guide the development and integration of enabling technologies.

The Commission concluded that a strong space industry is essential to sustaining a long-term exploration vision. To support the development of such an industry, the commission recommended that NASA utilize its contractual authority to seek out “the best ideas, technologies, and management tools.”⁸ The Commission also recommended that Congress provide entrepreneurial investment incentives to increase the potential commercial opportunities in support of the Vision.

The contribution of international talent and technologies was also found by the Commission to be valuable for the implementation of the Vision. The Commission recommended that “NASA pursue international partnerships based upon an architecture that would encourage global investment in support of the vision.”⁹

The Commission found that scientific knowledge would enable the implementation of the space exploration Vision. Opportunities to study Earth and space science will also be made possible in pursuit of the Vision. The Commission recommended that NASA routinely consult the scientific community in order to ensure that “maximum use is made

⁷ Ibid.

⁸ Ibid, 8.

⁹ Ibid, 9.

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Transformation at NASA (continued)

of existing assets and emerging capabilities.”¹⁰ The Commission also recommended that NASA ask the National Academy of Sciences (NAS) to “engage the scientific community in a re-evaluation of priorities to exploit opportunities created by the space exploration vision,” particularly the effective use and scientific value of human, robotic, and combination missions.¹¹ The Commission also recommended that NAS, with the help of the scientific community, develop metrics for the selection of future destinations in space, taking into account “affordability, technical maturity, scientific importance, and emerging capabilities including access to *in-situ* space resources.”¹²



An artist's rendering of crew members setting up equipment during a Mars polar expedition.

The Commission also found that the Vision presented an opportunity to spur a renewed interest in math, science, and engineering education for students and teachers. The Commission calls for the new Space Exploration Steering Council to combine the U.S. commitment to education with the power of the Vision to create an action plan that in turn would “increase the priority on teacher training”; “provide for better integration of existing math, science, and engineering education initiatives across governments, industries and professional organizations”; and examine the possibility of creating a university-based “virtual space academy” to provide technical training for the future workforce.¹³ It also recommended that “industry, professional organizations, and the media engage the public in understanding why space exploration is vital to our scientific, economic, and security interests.”¹⁴

The Commission was not intended to study the technical aspects of going to the Moon and Mars. The report succinctly presents the organizational, industrial, and societal coopera-

¹⁰ *A Journey To Inspire*, 9.

¹¹ *Ibid.*

¹² *Ibid.*

¹³ *Ibid.*

¹⁴ *Ibid.*

tion needed to make the Vision for U.S. Space Exploration a reality. For more information about the Vision for U.S. Space Exploration, please visit <http://history.nasa.gov/sep.htm> on the Web. The Aldridge Commission also has a site at <http://www.moontomars.org/> on the Web.

The NASA Response

Employees were asked to read the report and determine, in their opinion, what the top three priorities for NASA should be in support of the Vision. Officials compiled the results, and the top three priorities that emerged were 1) transforming NASA, 2) promoting education, and 3) examining alternative management models for Centers.¹⁵

Administrator O'Keefe hosted a special NASA Update on 24 June 2004 to address the Aldridge Commission report and the employee-selected priorities. He made clear that the report, though valuable, provides only suggestions to assist NASA in implementing the Vision for U.S. Space Exploration. This is in contrast to the findings and recommendations from the Columbia Accident Investigation Board Report, which must be implemented before the Space Shuttles may return to flight. O'Keefe assured employees that there would be plenty of time for discussion about the way to implement the Vision most effectively prior to the integration of the recommendations of the Aldridge Commission.

Much concern was voiced by employees over the Commission's recommendation to convert NASA Centers to FFRDCs. O'Keefe allayed fears by reminding employees that an FFRDC is only one of many alternative management models that may be used for the Centers. He acknowledged that all alternatives will require study and guaranteed that no decisions would be made overnight.

NASA Transformation

In response to some of the recommendations in the Aldridge Commission report, NASA will implement a new organization, effective 1 August 2004. The reorganization is an attempt to simplify the structure of NASA, making it more conducive to achieving the Vision. The guiding principle was creating clear lines of responsibility and streamlined reporting requirements.¹⁶

Perhaps one of the most significant changes in the new organizational chart is the transition from seven Enterprises (Education, Earth Science, Space Science, Space Flight, Aeronautics, Exploration Systems, and Biological and Physical Research) to four Mission Directorates (Exploration Systems, Space Operations, Science, and Aeronautics Research).¹⁷ Another significant item is that Safety and Mission Assurance (formerly Code Q) and Education (formerly Code N) will shift to the forefront as priorities within

¹⁵ Sean O'Keefe, "NASA Update" (speech delivered at NASA Headquarters, Washington, DC, 24 June 2004).

¹⁶ NASA, "Administrator Unveils Next Steps of NASA Transformation," Press Release 04-205, 24 June 2004, http://www.nasa.gov/home/hqnews/2004/jun/HQ_04205_Transformation.html.

¹⁷ Ibid.

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NASA.¹⁸ The Safety and Mission Assurance Officer, Bryan O'Connor, will report directly to Administrator O'Keefe, and the Chief Education Officer, Dr. Adena Loston, will report to Deputy Administrator Gregory.¹⁹

The new Mission Directorates are combinations of former Enterprises. Space Operations is composed of the former Space Flight Enterprise (Code M) and will work with Kennedy Space Center, Johnson Space Center, Marshall Space Flight Center, and Stennis Space Center. Aeronautics Research, the former Aeronautics Enterprise (Code R), will work with Dryden Flight Research Center, Glenn Research Center, and Langley Research Center. The Science Mission Directorate is composed of the former Earth Science (Code Y) and Space Science (Code S) Enterprises. This Mission Directorate will continue work with Goddard Space Flight Center and the Jet Propulsion Laboratory. It will also begin working with Ames Research Center, which will shift its focus from aeronautics to science. Exploration Systems will absorb the former Exploration Systems Enterprise (Code T) and the former Biological and Physical Research Enterprise (Code U).²⁰

The new mission support areas (Chief Financial Officer, Chief Information Officer, Chief Engineer, Institutions and Management, General Counsel, and Chief of Strategic Communications) are combinations of former Headquarters Functional Offices. The Procurement (formerly Code H) and Small and Disadvantaged Business Utilization (formerly Code K) offices have become part of the Chief Financial Officer's office (formerly Code B). The Chief Engineer's Office (formerly Code D) now will have the Independent Technical Authority reporting to it. Institutions and Management will include the Office of Human Resources (formerly Code F), the Office of Institutional and Corporate Management (formerly Code O), Equal Opportunity Programs (formerly Code E), and the Office of Security Management and Safeguards (formerly Code X). The Office of the Chief of Strategic Communications will absorb the Office of Public Affairs (formerly Code P), the Office of Legislative Affairs (formerly Code L), and the Office of External Relations (formerly Code I).²¹

NASA's reorganization into Mission Directorates and Mission Support Areas is just the beginning. Employees will continue to review the Aldridge Commission report and use it as a springboard for ideas to best organize and manage NASA to achieve the Vision. With a firm direction and a fresh look for the Agency, NASA will return to the Moon and then go on to Mars and beyond as only NASA can.

More information about NASA's reorganization may be found at <http://www.nasa.gov/> and <http://www.nasa.gov/audience/formedia/features/index.html> on the Web. The organization chart effective 1 August 2004 may be viewed at http://www.nasa.gov/pdf/61295main_trans_org_chart.pdf on the Web. NASA's organization chart prior to 1 August 2004 may be viewed at http://www.nasa.gov/pdf/61341main_previous_org_chart.pdf on the Web. The Vision for United States Space Exploration may be viewed at http://history.nasa.gov/Vision_For_Space_Exploration.pdf on the Web.

¹⁸ Ibid.

¹⁹ Ibid.; "Transformed Structure," NASA Organization Chart, revised 24 June 2004, http://www.nasa.gov/pdf/61295main_trans_org_chart.pdf.

²⁰ NASA, "Administrator Unveils Next Steps"; "Transformed Structure"; "NASA Organization," NASA Organization Chart, http://www.nasa.gov/pdf/61341main_previous_org_chart.pdf.

²¹ "Administrator Unveils Next Steps"; "Transformed Structure"; "NASA Organization."

NASA HISTORY PROGRAM REVIEW

By Jennifer L. Troxell

The Goddard Space Flight Center (GSFC) team hosted the very successful 2004 NASA History Program Review. Every NASA Center was represented at the 27–29 April 2004 conference. Given the prime location of the conference, participants had the rare opportunity to visit not only GSFC, but also NASA Headquarters and the Air and Space Museum's new Udvar-Hazy Center.

The conference provided the perfect forum for conversing with colleagues from around the United States, sharing ideas, and brainstorming on how to strengthen the NASA history programs. History and library sessions ran simultaneously, allowing participants to tailor the conference to their needs and interests. We were also fortunate to have many of the authors currently working on NASA projects attend, allowing Center contacts to match faces with manuscripts and ask questions about upcoming projects.

Attendees discussed the future direction of the NASA history programs. Individuals gave updates on the latest happenings in their respective history programs, inviting discussion on both successes and problems. The latest technology being used by some of the Centers in both the history and library programs was displayed, giving other Center contacts ideas on how to improve access to and retrieval of materials.

Two of the conference highlights were the tours of GSFC and the National Air and Space Museum's Udvar-Hazy Center. On the GSFC tour, conference participants were able to view the full-scale clean room used for the assembly and testing of the Hubble Space Telescope (HST). The clean room currently holds the HST mock-up used by astronauts to train for HST repair missions. In the future, it will also be used for the assembly of the James Webb Telescope. Conference attendees were also able to visit the centrifuge, vibration chamber, and full-scale Space Shuttle mock-up.

Participants visited the Udvar-Hazy Center on the last day of the conference. As a special treat, former NASA Chief Historian Roger Launius and former NASA archivist Mark Kahn acted as the group's tour guides for the more than 80 aircraft and dozens of space artifacts in the facility. Perhaps the most memorable event was the group's unexpected close access to the restoration of the Space Shuttle *Enterprise*. Though it never flew in orbit, the Space Shuttle *Enterprise* was the vehicle used for approach and landing testing. Courtesy of Roger and Mark (now both Smithsonian employees), conference attendees were able to walk right next to and underneath the *Enterprise*, much to the envy of other Smithsonian guests.

Goddard was a wonderful location for the event, and we thank the GSFC team for organizing this very successful conference.

NEWS FROM HEADQUARTERS AND THE CENTERS

Headquarters

Nadine Andreassen was promoted to Program Support Specialist in June 2004. She will serve as the point of contact for the History Office's budget, procurement, and personnel. She will continue making arrangements for conferences and symposia.

Tonya Blair is working as an intern in the History Office this summer. She is pursuing a Ph.D. in American history from the University of Southern Mississippi. Tonya has completed all of her coursework and is currently working on her dissertation, which will chronicle southern African-American women progressives/reformers from 1865 to 1920. She obtained a bachelor of arts degree in history from Elizabeth City State University, where she also taught African-American history courses. She earned a master of arts degree in American history from the University of North Carolina at Greensboro. In the past, Tonya interned with the Bureau of Land Management (Springfield, Virginia) and the Bureau of Minerals Management (New Orleans, Louisiana). She is currently working on the Great Images in NASA (GRIN) Web site. She is also doing some editing and gathering photos for the *Mission to Jupiter: A History of the Galileo Project* manuscript.

Colin Fries has finished writing abstracts for the Safety, Reliability, and Quality Assurance files and the Office of Policy files. He has also begun writing abstracts for the Office of Public Affairs files. Additionally, Colin continues to compile monthly chronologies. Colin assisted Steve Dick with a request from Discovery Channel regarding the USS *Benjamin Franklin* PX-15 submarine.

Steve Garber is keeping the Headquarters Printing and Design Office busy with a number of publications that will come to fruition in the next few months. In addition to the innovative management case studies book discussed in the feature article, a monograph focusing on the management of the Near-Earth Asteroid Rendezvous (NEAR) spacecraft project and a book on the Galileo spacecraft are in the works for this fall. He is also overseeing plans to reproduce several publications for the 35th anniversary of Apollo 11 and to produce a DVD of the U.S. Centennial of Flight Commission's impressive Web site. He continues to serve as the office intern coordinator and is working with the interns and the Printing and Design Office to overhaul the NASA History Web site with a fresh design that also provides easier access to the information we have online.

These past months, John Hargenrader added the following Headquarters office files to our database: Office of Tracking and Data Acquisition, Office of External Relations—Lynn Cline Collection, and Office of Inspector General. Of particular interest are the Office of Tracking and Data Acquisition files, which contain numerous topics dealing with the initial setup and operation of all of NASA's spacecraft tracking facilities that served unpiloted and human space missions up to 1996. The files complement Douglas Mudgway's *Uplink-Downlink* (published by the History Office in 2001) and deepen the reader's understanding of this interesting and valuable topic in NASA history. John and Colin Fries have also begun the scanning of Human Resource Office Chronological Files.

Michael Makara, a history and political science student from Virginia Tech, is working as an intern in the History Office for the summer. He is currently editing the *Shared Voyages* manuscript, working on the *One Giant Leap for Mankind: The 35th Anniversary of Apollo 11* Web site and CD, and editing the Centennial of Flight Commission DVD. In addition, Michael is working on various archival projects for Jane Odom. Finally, he has begun a research project on the history of the National Advisory Committee for Aeronautics (NACA).

Jane Odom attended the book-signing ceremony for *Taming Liquid Hydrogen: The Centaur Upper Stage Rocket, 1958–2002* by Virginia P. Dawson and Mark D. Bowles in Cleveland, Ohio, on Wednesday, 9 June 2004. Nearly 200 former and current Glenn (Lewis) Research Center and local contractor employees participated in this event. On Thursday, 10 June 2004, she presented a paper describing the NASA History program at the 19th Annual Freedom of Information Act Conference held in Alexandria, Virginia. She is currently appraising two collections for historical value: Code U chronological correspondence files, 1990–2000, and Louise Alstork's subject files, circa 1984–1999, which she donated upon her retirement.

Claire Rojstaczer is readying *Exploring the Unknown*, volume 6, and *The Wind and Beyond*, volume 2, for publication. She is also preparing updates for the GRIN image database and doing general updates on the History Office's Web pages. She has just begun to prepare a resource to help the History Office find interns in the future. As ongoing projects, she answers requests for information from the public and conducts initial appraisals of unprocessed archival material.

Jennifer Troxell has continued to work with Steve Garber and the Printing and Design Office on several publications, including a monograph focusing on the management of the NEAR spacecraft project, publications for the 35th anniversary of Apollo 11, and the overhaul the NASA History Web site. She is also serving as coordinator of the *Aeronautics and Space Report of the President* and is currently steering the 2002 and 2003 reports through the approvals process. Jennifer has also created and is continually adding to a training manual for future interns, as well as assisting Steve Garber by training the summer interns in office procedures and tasks. She also continues to edit, compile, and write for *News & Notes*. Additionally, she continues to work on her space tourism study. Finally, she has just started taking conversational Russian with several other people at Headquarters.

Dryden Flight Research Center

Expanding the Envelope: Flight Research at NACA and NASA (University Press of Kentucky, 2001) won the American Institute of Aeronautics and Astronautics (AIAA) 2004 Gardner-Lasser Aerospace History Literature Award. The award is given to the best original contribution to the field of aeronautical or astronautical nonfiction literature published in the last five years dealing with the science, technology, and/or the impact of aeronautics and astronautics on society. The award will be presented by the AIAA at its annual meeting in Providence, Rhode Island, on 17 August 2004.

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News from the Centers (continued)

Michael Gorn is expanding, editing, updating, and illustrating with new photographs *Flights of Discovery*, the popular history of NASA Dryden Flight Research Center first published in 1996. This substantially revised edition, which will be released to coincide with the 60th anniversary of Dryden in 2006, will be published by a commercial press.

Michael continues as Acting Chief of the Dryden Office of Public Affairs, Commercialization, and Public Outreach (of which History, Photo, Graphics, Video, and Technical Publications are part).

Christian Geltzer has completed the editing of two monographs. *Unconventional, Contrary, and Ugly: The Story of the Lunar Landing Research Vehicle* 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 three authors, Gene Matranga, Wayne Ottinger, and Cal Jarvis, worked as engineers on the program. Their well-illustrated book is geared to both the aficionado and the educated reader. Lane Wallace's *Nose Up: High Angle-of-Attack and Thrust Vectoring Research at NASA Dryden, 1979–2001* is a look at 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). Less technical than the LLRV monograph, it will nonetheless appeal to the knowledgeable reader as well as the novice. Both monographs should be out by August or September 2004. Christian is also hard at work on reviews of two new books for a refereed journal. Both of the books are compilations in the history of aviation.

Christian, along with Curtis Peebles, is curating two history exhibits to be displayed at Dryden. The first involves the computers used for the Digital-Fly-By-Wire program that ran between 1972 and 1976. The two are working on the interpretive descriptions of the large (150-plus pounds) ground-based computers, along with the Apollo 15 Command Module computer that flew on the F-8. The second exhibit is a collection of the work artifacts associated with the women who were employed as computers and who first came to Muroc Flight Test Unit, where they reduced flight-test data into usable information for the engineers. The exhibit is accompanied by an interview with Betty Love, a former computer and longtime NASA employee who continues to volunteer her services and knowledge. The interview will play on a laptop computer as both a supplement to the exhibit and a contrast to the present notion of a computer.

Peter Merlin continues to oversee the distribution of Donald Mallick's autobiography, *The Smell of Kerosene: A Test Pilot's Odyssey* (NASA SP-2003-4108), which he coauthored. Boxes of the book have been sent to Headquarters, Langley, Glenn, and Ames. Copies were distributed to employees at Dryden during a book-signing on 13 April 2004. The Dryden History Office is working with Headquarters to determine the best mechanism through which to disseminate the book to the general public. Meanwhile, copies have been placed in public libraries at Edwards Air Force Base and in communities in the Antelope Valley. Overall, the book has been well received by enthusiastic readers.

The Dryden History Office is currently developing *A Place Like No Other: Images of Flight Research* by Peter W. Merlin and Ted Huetter. This book will include dozens of

unique photographs illustrating the history of Dryden from 1946 to the present. Detailed captions and supplementary text will give the reader an overview of the Dryden's accomplishments during nearly six decades of aeronautical and aerospace research.

Curtis Peebles continues his writing efforts. Dr. Kenneth W. Iliff's memoir, *From Runway to Orbit: Reflections of a NASA Engineer*, which he edited, has been released. This book covers the work done by the former chief scientist at Dryden on the X-15, the Lifting Bodies, XB-70, and SR-71; the little-known story of the development of the aerodynamic database used to design the Shuttle; and the study of the data from the Shuttle reentries. It also includes such personal experiences as racing NASA research pilot Milt Thompson, flights with Chuck Yeager and Apollo 13 astronaut Fred Haise, and a trip to the Soviet Union in 1966 amid the Cold War.

Curtis is also working on a monograph of reaction control development at Dryden, entitled *Zero q*. He has begun editing a second collection of oral history interviews of Dryden personnel, entitled *The Spoken Word: Beyond the Sky*. This volume will cover the period of the 1960s and such projects as the X-15, Lifting Bodies, and the LLRV. Introductory text has been written for some of the interviews; the order of the interviews has been selected and the cover picture chosen. Like its predecessor *The Early Years*, the new volume will include articles from the *X-Press* to give the atmosphere of the times.

Glenn Research Center

Paige C. Lucas-Stannard is a co-op in the Glenn Research Center History Office. She graduated with a B.S. in physics/geology and a B.A. in science education from the University of Akron in Akron, Ohio. Paige has just finished her Master of Library and Information Science degree, which she will receive in August, and is currently pursuing an M.S. in information architecture and knowledge management, both from Kent State University. Before joining the co-op program, Paige worked for Kent State University Libraries, where she conducted student and faculty usability testing for the Libraries' Web site redesign team. She serves on the Special Library Association's Professional Development Committee and maintains the physics resource Web page for the Physics, Astronomy and Mathematics division. Paige also conducts planetarium shows at Kent Planetarium for elementary and middle school students and writes supporting curriculum for teachers visiting the planetarium. As you may have guessed, Paige's house is full of books, computers, and stargazing paraphernalia. Paige also shares the house with her husband, Pete, and their two beautiful dogs, Jaster and Sagan, in Cuyahoga Falls, Ohio. Paige can be contacted at Paige.C.Lucas-Stannard@nasa.gov or 216-433-8499.

Anne Burke is a co-op in the Glenn History Office. She received her B.A. in history from Baldwin-Wallace College and is currently working on her M.L.S. with a concentration in archives and records management at the University of Maryland. Anne is no stranger to Glenn. In the past, she has worked in procurement as part of the summer internship program. She has also served as the assistant to the historian at Baldwin-Wallace and, most recently, as a library technician at the National Archives Library Information Center. Her

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News from the Centers (continued)

research interests include internal marketing of information services and how NASA has influenced popular culture. On a personal note, Anne is a championship-level Irish step dancer and recently became engaged to be married. Anne can be reached at Anne.K.Burke@nasa.gov or 216-433-8715.

Bob Arrighi is an archivist for InDyne, Inc., at Glenn, supporting the History Office and the Imaging Technology Center. He has recently cowritten *NASA's Nuclear Frontier: The Plum Brook Reactor Facility* (SP-2003-4532). He received his B.A. in history (1997) from Cleveland State University and Master of Library and Information Science (2001) from Kent State University. At Kent State, he prepared the Staughton Lynd Collection for the Department of Special Collections and Archives. From 1998 to 2001 at History Enterprises, Inc., Arrighi completed a number of archival projects for the Davey Tree Co., Temple Tifereth Israel, Huron Road Hospital, Matrix Essentials, and the National Institutes of Health. Between 2001 and 2003, he worked at NASA's Plum Brook Reactor Facility archiving documents, identifying artifacts, cowriting a documentary script, and serving as a consultant on various aspects of the historical preservation project. He began working for InDyne, Inc., in June 2003. Bob can be reached at robert.arrighi@grc.nasa.gov or 216-433-5968.

Eleanor "Nora" Blackman is an archivist for InDyne, Inc., supporting the History Office Archives at Glenn Research Center. Nora began her work at Glenn in March 2004. She graduated from Ohio University with an A.B. in history, and from Case Western Reserve University with an M.A. in history (archival administration program). Prior to joining the Glenn staff, Nora was employed as an archivist in the University Archives at Case Western Reserve University. Most recently, Nora worked in Electronic Services at Lakewood Public Library, creating Web pages and overseeing the digitization of local history resources in that collection. She has had her own archives consulting business for 16 years. Nora is a lifelong Lakewood, Ohio, resident, where she and her husband Chuck are raising their two children, Frank and Ella. You may contact Nora by e-mail at Eleanor.L.Blackman@grc.nasa.gov, or by phone at 216-433-5765.

GLENN RESEARCH CENTER ACTIVITIES**By Paige C. Lucas-Stannard**

The Glenn Research Center History Office recently participated in two exciting events celebrating the rich history of the Center. As I have just finished my first two weeks here as one of two new co-op students in the History Office, I would like to describe the events from a "newbie's" perspective.

On 9 June 2004, we hosted an event to mark the release of a new history book entitled *Taming Liquid Hydrogen: The Centaur Upper Stage Rocket, 1958–2002*. The book, written by Dr. Virginia Dawson and Dr. Mark Bowles, chronicles three decades of the successful Centaur rocket program here at Glenn. The ceremony honored the authors, who were presented the 2004 AIAA Historic Manuscript Award by Christopher Pestak and John Blanton of AIAA. The formal ceremony was followed by refreshments and book-signing. The true highlight of the afternoon for me was the attendance of Centaur retirees. I was stationed at the registration desk, and from this vantage point, I watched

as each retiree entered the building, warily looking around for someone familiar. Before long, however, the lobby was bustling with reunions and reminiscing. To these men and women, who spent large chunks of their lives contributing to NASA history, *Taming Liquid Hydrogen* was a salute to their time and effort in making the Centaur program a success. History is often thought of as a way to learn from past mistakes, but the people of Centaur remind us not to forget to learn from the successes that got us where we are.

The History Office again had the opportunity to showcase some of Glenn's contributions at the Center's Public Open House, held on 12 and 13 June 2004. Kevin Coleman was on hand to discuss Glenn's history, the new Centaur book, and the upcoming premier of the documentary about the Plum Brook Nuclear Reactor Facility with the more than 40,000 guests. My role at this event was tour guide on the buses to and from the Center. Visitors were treated to hands-on demos of microgravity experiments, a simulation of the Wright brothers' first flight, and robotics technology demonstrations. Children made and raced their own balloon-powered rockets and experimented with paper airplanes designed after the Glenn glider. As excited as people were on their way to the Center, their excitement then could not compare to the wonder at the variety and relevance of Glenn's history that they felt at the conclusion of the visit. It was clear from the Open House that the researchers at the Center are not the only people benefiting from the collection of Glenn's history. Using our history as a celebration got the public excited about the future of NASA and, we hope, inspired the next generation to push the outer limits of scientific progress.

In all, I cannot think of a more inspiring start to my tenure with the History Office at Glenn. It does not appear that the excitement is going to die down anytime soon. Next month, a documentary about Glenn's Plum Brook Nuclear Reactor Facility will premiere in Sandusky, Ohio. This film is directed by Jim Polaczynski, of InDyne, Inc., and Glenn's Imaging Technology Center, and will be narrated by actress Kate Mulgrew from *Star Trek: Voyager*. An accompanying monograph entitled NASA's *Nuclear Frontier: The Plum Brook Test Reactor* is scheduled for release in summer 2004. The History Office staff has begun work on a new Web site that will highlight Glenn's rich history, and a project to capture knowledge from employees nearing retirement is also under way. I am looking forward to all the work ahead, especially with the great team here at Glenn. If my first two weeks are any indication, it is going to be a historic journey.

Jet Propulsion Laboratory

PHOTO TRIBUTE TO DR. WILLIAM H. PICKERING, FORMER DIRECTOR

The Jet Propulsion Laboratory (JPL) Archives Historical Photo of the Month for April 2004, located at <http://beacon.jpl.nasa.gov/Histphotos/hpom/pickering.htm> on the Web, was dedicated to Dr. Pickering, former long-time Director of the Jet Propulsion Laboratory, who passed away on 15 March 2004 at the age of 93. It included 10 images from his tenure as Director—not portraits or photos that had already been widely used, but images from the Archives photo collection that showed additional highlights of his career.

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News from the Centers (continued)

Links were provided to a number of sources of information, including past Historical Photos of the Month, the online exhibit “Faces of Leadership: the Directors of JPL,” articles, press releases, and archival collections at both JPL and Caltech.

Dr. Pickering was born in New Zealand. He immigrated to the United States in 1929 and earned several degrees at the California Institute of Technology. He started working at JPL in 1944, became a professor of electrical engineering at Caltech in 1946, and served as Director of JPL from 1954 to 1976. During his long and distinguished career, JPL made major contributions first to guided missile development for the U.S. Army and then to robotic exploration of the solar system for NASA. Dr. Pickering retired from JPL on 31 March 1976.

Johnson Space Center History Office

The Johnson Space Center (JSC) History Office has released the monograph *Lunar Receiving Laboratory (LRL) Project History*, written by Dr. Susan Mangus of Muskingum College, Ohio. The 65-page book explains in detail the evolution of this facility and how it served as a geology laboratory, biological laboratory, and astronaut quarantine facility during the Apollo program. Dr. Mangus addresses the multiple challenges facing engineers, scientists, and architects regarding budget constraints, personalities, and time limits as they worked to ensure that the LRL was ready for the first human lunar landing. She explores the “competition and conflict between various factions associated with the LRL, defining not only what conflicts existed but why certain relationships became more contentious than others.” Dr. Mangus produced her work as a participant in NASA’s Post-Doctorate Fellowship Program.

In another education-related program, the JSC History Office continued its summer internship program. Since 1997, JSC has invited college students to apply for a 10-week summer work program to utilize their research and writing skills. Although the students’ academic disciplines vary, the interns excel in gathering information about the individuals to be interviewed for the ongoing JSC Oral History Project. In the past, universities and colleges from various parts of the nation have been represented. This year, Tessa Boyd, Kevin Brady, Ashley Laumen, Sarah Pruet, all from Texas schools, served as researchers, while Richard Blakeley from Washington assisted with the JSC History Collection and the JSC Archives at the University of Houston-Clear Lake.

The Oral History Project Team, while working closely this past summer with the intern staff, prepared for its presentation at the Oral History Association annual conference from 29 September through 3 October 2004 in Portland, Oregon. “The Story After: Recovering the Space Shuttle *Columbia*” explains the oral history project they conducted while hundreds of people searched for answers and recovered thousands of pieces of the orbiter after its tragic demise on 1 February 2003. Issues discussed will include the rapid organization and implementation of the project, the challenges encountered while gathering oral history during the recovery effort, the diversity of the interviews and participants, and how the results may serve as a source of information to those developing future responses to national disasters.

Langley Research Center

Joe Chambers is preparing a manuscript on innovation at Langley Research Center. The manuscript will document advanced concepts developed at Langley that have never been applied to civil or military aircraft.

Erik Conway is currently working on a history of atmospheric research by NASA under contract to the Atmospheric Sciences Program Office at Langley. Five of seven chapters are complete, and the full draft of the manuscript is due in April 2005. His previous NASA history manuscript, *High Speed Dreams*, is currently awaiting copyediting at Johns Hopkins University Press. Its publication is expected in spring 2005. Erik also has an article on the evolution of air traffic control in the United States forthcoming in *History and Technology*.

Erik will be leaving Langley this September to become a historian at the Jet Propulsion Laboratory. He has served as “Visiting Historian” at Langley for the last five years, and, at least in the short term, he will not be replaced. Langley Research Center is currently undergoing a complete restructuring, and the direction of its history program is unclear.

ARCHIVAL UPDATE

The White House/Presidential Collection

By Colin Fries

As of May 2004, the White House/Presidential collection (1955–present) has been fully arranged, described, and cataloged to provide more indepth access. With President George W. Bush’s new initiative “The Vision for Space Exploration” guiding NASA’s future, the study of past presidential leadership is a prerequisite. Since space policy is formulated at the executive branch level, the NASA History Office’s White House/Presidential files comprise one of its core collections. Currently 34 cubic feet and growing, this seminal collection begins with the administration of Dwight David Eisenhower and the founding of NASA. It contains news clippings, speeches, press releases, magazine articles, excerpts from the Congressional Record, and, most importantly, photocopies of correspondence between NASA officials (usually the Administrator at the time) and the presidential staffs.

The concentration of primary source material lies in the early years of the space program: the era of Mercury, Gemini, Apollo, and early Space Shuttle development (Presidents Eisenhower through Nixon). There is also a wealth of material relating to the *Challenger* accident and the subsequent STS 26 Return to Flight. Much of the correspondence has come from researchers who donated copies of many of the documents they unearthed after visiting the various presidential libraries. These files are organized chronologically by presidential administration and then by subject within the individual President’s

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Archival Update (continued)

term(s) of office. Typically, the subjects are arranged by year and are divided into 1) “Photographs”; 2) “General”—usually news clippings chronicling major life events and presidential initiatives other than space; 3) “Space—General”—usually articles, news clippings, and press releases regarding the space race and support of the space program; 4) “Space—Speeches”; and 5) “Correspondence”—photocopies of NASA-related documents. Areas of special interest include the “National Aeronautics and Space Act of 1958” in the Eisenhower files, with congressional testimony, analysis, and various revisions of the Space Act; Apollo decision documentation in the John F. Kennedy files; Space Task Group correspondence and reports in the Richard Nixon files; post-*Challenger* accident speeches and correspondence in the Ronald Reagan files; and the Rose Garden celebration for the naming of the new orbiter *Endeavour* in the George H. W. Bush files.

Many of the key documents found in the presidential files are reproduced in the *Exploring the Unknown* series, especially volume 1, *Organizing for Exploration*, and volume 3, *Using Space*.

Besides the sequential files of the Presidents already described, the White House files consist of proceedings of space policy workshops and conferences, as well as NASA reports to the White House from 1958 to 1990. In addition, this section has documentation on the National Security Council, 1955–present; the National Aeronautics and Space Council (NASC), 1958–1973; the National Space Council, 1988–1992; the President’s Science Advisory Committee, 1959–present; the Bureau of the Budget (BOB) and Office of Management and Budget (OMB), 1955–present; the Office of Science and Technology Policy (OSTP); White House Councils and Commissions; and transition books and papers.

With the ongoing declassification and donation of documents, the White House/Presidential collection will continue to grow and remain an important source for scholarship on space policy.

OTHER HISTORY NEWS

National Air and Space Museum

The National Air and Space Museum staff has begun restoration work on the Space Shuttle *Enterprise* at the Steven F. Udvar-Hazy Center. A Web camera has been placed in the hangar, and people are invited to visit the Web site and view the restoration work in real time. To view the camera, please visit <http://www.nasm.si.edu/interact/webcams/uhc2/uhc2vt.cfm> on the Web.

John Glenn Audiovisual Collection Open to Public Research

The Ohio State University John Glenn Archives are open for public research. Over 1,900 cubic feet of material chronicles the lives of John Glenn and his wife, Anna “Annie” Castor Glenn. The collection consists of four major subgroups: the Senate Papers, covering Glenn’s 24 years as a U.S. Senator from Ohio; the Non-Senate Papers, consisting of family, military, NASA, corporate, and post-Senate materials; the Audio-Visual Collection, consisting of approximately 100 cubic feet of audiovisual material and almost 300 oversized framed pieces; and the Artifacts Collection, scheduled to open sometime in 2004. In addition, the Archive’s Web site at <http://www.lib.ohio-state.edu/arvweb/glenn/glenn.htm> contains a wealth of information online, in addition to a finding aid for individuals interested in doing research at the Archives. For additional information on the archives, call Jeff Thomas at 614-688-8429, e-mail him at thomas.1082@osu.edu, or visit <http://www.lib.ohio-state.edu/arvweb/glenn/glenn.htm> on the Web.

Department of Homeland Security

The Department of Homeland Security (DHS) History Office was created to record, preserve, and disseminate the history of the department. The DHS Historian is seeking qualified contract historians. Contract historian opportunities are advertised online at <http://www.fedbizopps.gov>. Information about registering as a government contractor may be found at <http://www.ccr.gov> on the Web. If you have any questions, please e-mail Dr. Priscilla Jones, the DHS Historian, at priscilla.jones@dhs.gov.

PUBLICATIONS

New NASA Publications

NASA’s Nuclear Frontier: The Plum Brook Research Reactor (NASA SP-2003-4532), by Mark Bowles, is a short, heavily illustrated monograph about this unique Glenn Research Center facility.

Runway to Orbit: Reflections of a NASA Engineer, by Dr. Kenneth Iliff, ushers the reader through some of the pivotal aerospace projects undertaken by NASA since the early 1960s. Iliff made critical contributions to research on the X-15 aircraft, the lifting bodies, the XB-70 bomber, high-angle-of-attack aircraft, and the Space Shuttle, among others. His highly personal and thoughtful narrative also describes his seminal contributions to parameter estimation.

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Publications (continued)

The Smell of Kerosene: A Test Pilot's Odyssey, by Donald Mallick, chronicles his career as a naval aviator, as well as his 30 years as a National Advisory Committee for Aeronautics (NACA) and NASA research pilot. In total, Mallick flew over 11,000 flight hours in 125 different aircraft, including general aviation craft; sailplanes; the SR-71; the lifting bodies; the Lunar Landing Research Vehicle; and many fighter, bomber, and transport vehicles.

Taming Liquid Hydrogen: The Centaur Upper Stage Rocket, 1958–2002 (NASA SP-2004-4230, 2004), by Virginia P. Dawson and Mark D. Bowles, is a project history that uses the Centaur as a case study in how technological knowledge has advanced over the history of NASA, discusses the nature and development of technological research and development (R&D), and analyzes the role of technology transfer in the aerospace arena. The Centaur is an upper stage rocket fueled by liquid hydrogen and liquid oxygen; it maintains its shape through pressurization.

Apollo: A Retrospective Analysis, by Roger D Launius, is Monograph in Aerospace History, Number 3. This monograph, originally printed in 1994, has been reprinted with a fresh cover in honor of the 35th anniversary of Apollo 11.

Remembering Apollo 11: The 35th Anniversary Data Archive History CD-ROM (SP-2004-4601) is a reprint of the 1999 30th-anniversary edition (SP-4501). The reprint, in honor of the 35th anniversary of Apollo 11, contains all the data from the original CD-ROM, including technical diagrams; biographies of the astronauts; *An Annotated Bibliography of the Apollo Program*, Monograph in Aerospace History, Number 2; *Apollo: A Retrospective Analysis*, Monograph in Aerospace History, Number 3; press kit; mission operation report; and news references. In addition, the new edition includes goodwill messages that Aldrin and Armstrong took with them to the Moon, the Apollo Program Summary Reports, and *What Made Apollo a Success?* (SP-287).

Forthcoming NASA Publications

Centennial of Flight Website DVD-ROM. This DVD-ROM is a static version of the large, informative Web site that was created for the 17 December 2003 anniversary of the first Wright brothers flight. The DVD-ROM is due out in late summer 2004.

Unconventional, Contrary, and Ugly: The Story of the Lunar Landing Research Vehicle, by Gene Matranga, Wayne Ottinger, and Cal Jarvis, 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 is expected to be published in late summer or early fall 2004.

Nose Up: High Angle-of-Attack and Thrust Vectoring Research at NASA Dryden, 1979–2001, by Lane Wallace, 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). The monograph should be out by late summer or early fall 2004.

Low Cost Innovation in Spaceflight: The Near-Earth Asteroid Rendezvous (NEAR-Shoemaker) Mission, by Howard E. McCurdy, is a well-written study that examines the managerial history of the successful NEAR mission. The monograph should be published in fall 2004.

Shared Voyage: Learning and Unlearning from Remarkable Projects, by Alex Laufer, Todd Post, and Ed Hoffman, is a well-written study that details four (two NASA, two Department of Defense) case studies in aerospace project leadership. This manuscript should be published in fall 2004.

Mission to Jupiter: A History of the Galileo Project, by Michael Meltzer, is an informative manuscript that discusses the Galileo spacecraft project from its inception to its conclusion. It should be published in December 2004.

New Non-NASA Publications

New Moon Rising: The Making of the Bush Space Vision, by Frank Sietzen, Jr., and Keith Cowing, is available from Apogee Books. This book discusses the planning and policy discussions that culminated in President George W. Bush's historic 14 January 2004 announcement. For more information on this book, please visit <http://www.apogeebooks.com/newmoon.htm> on the Web.

Splashdown: NASA and the Navy, by Don Blair, is available from Turner Publishing Company. This coffee-table book explores the relationship NASA had with the Navy during the early days of human spaceflight. It features over 200 photographs and details of every ship used in support of module recovery. For more information on this book, please visit <http://www.turnerpublishing.com/detail.aspx?ID=1049> on the Web.

Moonrush, by Dennis Wingo, is available from Apogee Books. This book discusses the economic reasons for returning to the Moon. For more information on this book, please visit <http://www.cgpublishing.com/moonrush.htm> on the Web.

American Women and Flight Since 1940, by Debbie Douglas, was published by the University Press of Kentucky in 2003. This comprehensive reference work discusses the continuing debate over the question "Should women fly?" For more information on the book and how to purchase it, please visit http://www.kentuckypress.com/viewbook.cfm?Category_ID=1&Group=17&ID=1064 on the Web.

Tommorrowland: Disney in Space and Beyond, part of the Walt Disney Treasures series, is now available for a limited time on DVD. The segments included first aired on television in the 1950s and are a combination of animation, live action, models, and short lectures given by experts, including Dr. Wernher von Braun. Some of the episodes included on the DVD are "Man in Space," "Man and the Moon," and "Mars and Beyond." For more information on this DVD set, please visit <http://disney.go.com/DisneyVideos/disneytreasures/> on the Web.

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Publications (continued)

New NASA Web Sites

A Journey To Inspire, Innovate, and Discover is now available at http://history.nasa.gov/aldridge_commission_report_june2004.pdf on the Web. The report was created by the President's Commission on Implementation of United States Space Exploration Policy, otherwise known as the Aldridge Commission, in response to an executive order signed on 27 January 2004 by President George W. Bush. The executive order called for the creation of a commission to study, make recommendations for, and report on implementing the new space vision announced by President Bush on 14 January 2004. The Commission had 120 days to complete its study, which resulted in this 60-page document.

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

Why Man Explores, by James Michener, Norman Cousins, Philip Morrison, Jacques Cousteau, and Ray Bradbury (NASA EP-125, 1976), is now available at <http://history.nasa.gov/EP-125/ep125.htm> on the Web. This transcript discusses rationales of space exploration. Special thanks to Claire Rojstaczer, John Hargenrader, and Chris Gamble for formatting this publication for the Web.

Atmosphere of Freedom: Sixty Years at the NASA Ames Research Center, by Glenn E. Bugos (NASA SP-4314, 2000), is now available at <http://history.nasa.gov/SP-4314/sp4314.htm> on the Web. This book covers the rich history of Ames Research Center from the days of NACA to the groundbreaking research conducted today.

Searching the Horizon: A History of Ames Research Center 1940–1976, by Elizabeth A. Muenger (NASA SP-4304, 1985), is now available at <http://history.nasa.gov/SP-4304/sp4304.htm> on the Web. This book discusses the rich history of Ames Research Center from the days of the NACA to after Apollo.

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 now available at <http://history.nasa.gov/monograph11.pdf> on the Web. 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 now available at <http://history.nasa.gov/monograph14.pdf> on the Web. This informative monograph details the management lessons that were 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 now available at <http://history.nasa.gov/monograph17.pdf> on the Web. This well-written monograph discusses the development of the X-15 research airplane, which contributed to the successful development of both the Apollo capsule and the Space Shuttle.

New Non-NASA Web Sites

Don Wilhelm's professional paper, "The Geologic History of the Moon," is now available online at <http://cps.earth.northwestern.edu/GHM/>, courtesy of Northwestern University. This reference work contains detailed information about the lunar surface.

The Ohio State University John Glenn Archive staff hosts a Web site at <http://www.lib.ohio-state.edu/arvweb/glenn/glenn.htm>. It contains a wealth of online information, as well as a finding aid for individuals interested in doing research at the Archives.

Call for Papers/Proposals

The ABC-CLIO welcomes authors for *Space Exploration and Humanity*, an encyclopedia dedicated to exploring events, individuals, issues, and impact of human spaceflight endeavors. The six areas examined will be human spaceflight and microgravity science, astronomy and Earth science, military applications, space and society, technology and engineering, and civilian and commercial applications. The History Committee of the American Astronautical Society (AAS) will serve as the Editorial Board on the encyclopedia, which will be published by ABC-CLIO. For more information on becoming an author for this publication, please e-mail Dr. Stephen B. Johnson at sjohnson@space.edu or call 719-487-9833.

The American Astronautical Society's bimonthly *Space Times* magazine welcomes feature-length and opinion/editorial articles that offer fresh perspective and insight on topics of current and historical relevance in space science, technology, exploration, and policy. The magazine also includes reviews of recently published space-related books. For more information or to submit an abstract, please contact Amy Kaminski, editor, at amykaminski@yahoo.com. Contents of previous issues are posted on AAS's site, <http://www.astronautical.org> on the Web.

Quest: The History of Spaceflight Quarterly seeks space history articles on any facet of space history. *Quest* currently features space history articles related to technology, international programs, human flight, robotic exploration, military programs, space museums and archives, space business, oral histories and interviews, culture and media relations, and space history book reviews. For information, contact *Quest* editor Dr. Stephen Johnson at 719-487-9833, sjohnson@space.edu, or visit *Quest* at <http://www.spacebusiness.com/quest> on the Web.

2005 MUTUAL CONCERNS SEMINAR—SOLICITATION FOR SESSION PROPOSALS

By Jean DeStefano, Program Specialist, National Air and Space Museum

We are now starting to plan for the 2005 Mutual Concerns Seminar, to be held 19–22 March 2005 at the Museum of Flight in Seattle, Washington. At this time, we are seeking proposals on any topic or issue relevant to our community of museums and aerospace education centers. Submitting a session proposal is an important means for

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Publications (continued)

sharing and exploring our common interests. We appreciate your thought, time, and effort in making this submission.

In addition to clearly describing the session and listing possible speakers, each proposal should try to designate a chair for the session. Duties of the chair include managing the presentation of the session at the seminar; providing opening, summary, and comments to the session; offering analysis of the presentations; and, where appropriate, assisting you with organizing the session. We also ask that the chair briefly coordinate with each speaker before the seminar in order to present a well-rounded session.

We allot 1 hour for most sessions. Please let us know if you think your proposed session would need additional time. Each session will usually include a brief intro by the chair, the speaker presentations, the chair's comments, and a question-and-answer period with the audience. In thinking about your proposed session, please carefully consider your subject and the number of speakers. In most cases, a two-speaker format will allow sufficient flexibility to cover a subject in depth and involve the audience.

Once your proposal is submitted, it will be reviewed by the program committee, a standing committee whose membership is drawn from seminar participants. This committee will meet this fall to draft a program for the 2005 seminar. The committee will review all proposals and may, based on the number and subject-matter balance of the submissions, introduce additional session ideas. The committee may also, in reviewing your proposal, come back to you to suggest alternative approaches and speakers to achieve the goals of your session.

Session proposals should be submitted to the National Air and Space Museum or the American Association of Museums by Tuesday, 31 August 2004. For more information, please e-mail Jean DeStefano at DeStefanoJ@nasm.si.edu.

UPCOMING MEETINGS/EVENTS

On 11 August 2004 at 12:00 noon, John Anderson will give a lecture entitled "The X-15 and Hypersonic Flight" at the National Air and Space Museum. For more information, please visit <http://www.nasm.si.edu/events/lectures/curchoice.cfm> on the Web.

On 18 August 2004 at 12:00 noon, Amanda Young will give a lecture entitled "Spacesuit Evolution from John Glenn to Apollo 15" at the National Air and Space Museum. For more information, please visit <http://www.nasm.si.edu/events/lectures/curchoice.cfm> on the Web.

On 19–22 August 2004, the Mars Society will hold its annual convention in the Palmer House Hilton in Chicago, Illinois. For more information, please visit <http://www.MarsSociety.org> on the Web.

On 25 August 2004 at 12:00 noon, Thomas Watters will give a lecture entitled “The Search for Subsurface Water on Mars: The MARSIS Radar Sounder” at the National Air and Space Museum. For more information, please visit <http://www.nasm.si.edu/events/lectures/curchoice.cfm> on the Web.

From 29 August through 2 September 2004, the Ninth International Conference on the Commercialization of Micro and Nano Systems will be held in Edmonton, Alberta, Canada. For more information, please visit <http://www.mancef-coms2004.org/> on the Web.

From 11 to 15 September 2004, the Air Force Association will hold its annual National Convention and Aerospace Technology Exposition in Washington, DC. For more information, please visit <http://www.afa.org> on the Web or call 703-247-5800.

From 15 to 18 September 2004, the Society of Experimental Test Pilots will host its 48th Annual Symposium and Banquet at the Westin Bonaventure Hotel in Los Angeles, California. For more information, please visit <http://www.setp.org> or call 661-942-9574.

On 18 September 2004, from 11:00 a.m. to 4:00 p.m., the National Air and Space Museum’s Udvar-Hazy Center will host the Dulles Day Family Festival. Admission is free. For more information, please visit <http://www.nasm.si.edu/events/calendar.cfm?month=09&year=2004> on the Web.

From 28 to 30 September 2004, the AIAA will host its Space 2004 Conference and Exhibition in San Diego, California. For more information, please visit <http://www.aiaa.org> or call 703-264-7551.

From 4 to 8 October 2004, the AIAA will host the 55th Congress of the International Astronautical Federation, the International Academy of Astronautics, and the International Institute of Space Law in Vancouver, British Columbia, Canada. For more information, please visit <http://www.aiaa.org> or call 703-264-7551.

From 7 to 10 October 2004, the Dutch Foundation for the History of Technology will host the annual meeting of the Society for the History of Technology at the Renaissance Amsterdam Hotel in Amsterdam, the Netherlands. For more information, please visit <http://shot.press.jhu.edu/>, e-mail shot@iastate.edu, or call 515-294-8469.

From 16 to 17 November 2004, the American Astronautical Society will hold its National Conference and 51st annual meeting at the Pasadena Hilton in Pasadena, California. For more information, please visit <http://www.astronautical.org> or e-mail info@astronautical.org.



IMAGES FROM SPACE HISTORY

On 25 May 1961, President John F. Kennedy gave a speech on “Urgent National Needs” to a joint session of Congress. He declared, “I believe this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to the Earth.” In order to meet this goal, NASA utilized its greatest asset, its extremely knowledgeable workforce.

In this image, Dr. Wernher von Braun explains the Saturn Launch System to President John F. Kennedy at Cape Canaveral Missile Test Annex Complex 37 on 16 November 1963. NASA Deputy Administrator Robert Seamans is to the left of von Braun. The Saturn V rocket was the workhorse for the Apollo Moon missions.

Kennedy’s goal was realized at 10:56 p.m. EDT, 20 July 1969, when astronauts Neil A. Armstrong and Edwin “Buzz” Aldrin landed on the Moon in the lunar module *Eagle* while Michael Collins orbited above in the command module *Columbia*. The 35th anniversary of the historic Apollo 11 landing is 20 July 2004.

This image may be downloaded in various sizes from the Great Images in NASA (GRIN) site located at <http://grin.hq.nasa.gov/ABSTRACTS/GPN-2000-001843.html> on the Web.

To listen to or read President Kennedy’s speech on “Urgent National Needs,” please visit <http://www.jfklibrary.org/j052561.htm> on the Web. For more information about Dr. von Braun and Dr. Seamans, please see <http://history.nasa.gov/prsml.htm#aerofficials> on the Web. For more information on Apollo 11, please see <http://www.hq.nasa.gov/office/pao/History/ap11ann/eagle.html> on the Web. For more information on Neil Armstrong, Buzz Aldrin, and Michael Collins, please visit http://www.jsc.nasa.gov/Bios/astrobio_former.html on the Web.

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We also welcome comments about the content and format of this newsletter. Please send comments to Jennifer Troxell, newsletter editor and compiler, at Jennifer.L.Troxell@nasa.gov or call 202-358-0724.

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Vision

To improve life here,
To extend life to there,
To find life beyond.

Mission

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To explore the universe and search for life,
To inspire the next generation of explorers
. . . as only NASA can.



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