



FROM THE CHIEF HISTORIAN



One of the challenges of writing space history is its multifaceted nature. Among those facets is international relations, a rich subject that has not received enough historical treatment. A recent meeting in Paris on “French American Relations in Space, 1957–1975,” brought home this fact, even within the limits of bilateral relations with one European country. Organized by the Institut Français d’Histoire de l’Espace and sponsored by the French Minister of Foreign Affairs, participants included historians, the French Space Agency Centre National d’Etudes Spatiales (CNES), representatives from the French space industry, and a variety of political and scientific participants from that early era in the Space Age.

Among the clear lessons at the meeting was the importance of the environment—cultural, political, and social—in shaping international cooperation in science and technology. The meeting began with a session on “the general context of cooperation” that included Pierre Messmer, Prime Minister under Charles De Gaulle. Mr. Messmer pointed out that space policy in France was a byproduct of French arms policy, and this alone explains much of the early difficulty in cooperation with the United States. Papers from other speakers made clear that French-American relations in space took place in at least three contexts: 1) the global context of the Cold War dominated by two superpowers; 2) the national context of European and French-American politics; and 3) the institutional context of NASA and its dealings with French institutions, first before France had a space agency, to when it formed CNES in 1962 and participated in the European Launcher Development Organisation (ELDO) and the European Research

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SYMPHONIE LAUNCH NEGOTIATIONS

—Richard Barnes, Former NASA European Representative

Note: The following paper was presented at a recent meeting in Paris on “French American Relations in Space, 1957–1975.” It is of particular interest because the author, Dick Barnes, was directly involved in the project as director of NASA’s Cooperative Projects. He served as the NASA Europe representative from 1981 to 1985, and as NASA’s Director of International Relations from 1985 to 1990. Here, Mr. Barnes gives a counterpoint to the common view that the European launcher known as Ariane was precipitated by U. S. restrictions placed on the launch of the French Symphonie communications satellite. My thanks to Mr. Barnes for the permission to publish his comments in the hope that they will stimulate more research. —Steve Dick

It has become an article of faith among many in the international space world that in the early 1970s, when France and Germany contracted with NASA to launch their Symphonie communications satellites on the Delta vehicle, the U.S. Government imposed unreasonably restrictive conditions on the prospective use of Symphonie. Because of these restrictions—the myth goes—Europe concluded that the U.S. would not be a reliable supplier of space launch services and thus decided to develop its own Ariane launcher.

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Symphonie Launch Negotiations (continued)

As someone who participated in the negotiation of the Symphonie launch services agreements, I shall describe the conditions included in these agreements and leave it to the reader to determine how closely the facts fit the myth.

When the Franco-German Symphonie project directors came to NASA to seek a cost-reimbursable launch on the Delta, it was with great reluctance and only because the European Launcher Development Organisation (ELDO) Europa launcher development program had failed. The nascent Ariane program was years away from any projected operational capability. It also followed extended negotiations in the Post-Apollo cooperation framework that led to the 1972 U.S. launch policy statement.

Under that policy, U.S. launchers were available for foreign satellites that were for peaceful purposes and whose use would be consistent with obligations under relevant international agreements and arrangements. Specifically, for communications satellites that might be used for operational purposes (and, therefore, could possibly compete with Intelsat), the U.S. would—in making its decision to launch—take into account, but not necessarily be bound by, Intelsat recommendations made after consultations called for in Article XIV of the Intelsat Definitive Arrangements, concluded in 1971, to which France, Germany, and the U.S. were all signatories.

This policy statement was hammered out after an extended debate within the U.S. Government between one faction whose primary concern was to protect Intelsat's monopoly on international satellite telecommunications and another faction that wanted a U.S. launch policy as forthcoming and open as possible. Officials in Washington considered the policy to be a reasonable compromise, but its announcement did little to quell the transatlantic controversy.

Another important factor influenced the Symphonie negotiations. Although it was clear from the beginning that Symphonie's main mission would be to test and demonstrate new technology, it was by no means clear how the spacecraft would be used once the initial experimental phase had been completed. In fact, the head of the French radio and television authority Office de Radiodiffusion Télévision Française (ORTF) was reported in the French press to be publicly predicting Symphonie's ultimate operational use in broadcasting French language programming to Francophone areas within view of the satellite (e.g., Quebec). Whether or not such statements were anything more than political rhetoric for domestic consumption to hype the project, they did not escape the attention of the Intelsat-protecting hardliners in Washington.

It was in this politically charged climate that the Symphonie launch negotiations took place. The agreement was negotiated in two parts: an agency-level launch service contract between the French Centre National d'Etudes Spatiales (CNES) and German Gesellschaft für Weltraumforschung (GfW) on the one hand and NASA on the other, and an exchange of diplomatic notes among the three governments.

The agency-level discussions were relatively straightforward with little controversy or delay. Article XVI of the Launch Services Agreement provides that CNES/GfW “will

inform NASA in advance of any proposed uses of Symphonie that may be considered other than experimental” and if either party considers the use to “constitute a public or specialized telecommunications service, CNES/GfW will assure the initiation of consultation formalities with INTELSAT. . .” One might argue (and some did) that it was patronizing of NASA to remind its customers of their treaty obligations to consult with Intelsat. But given the public ambiguity about the future use of Symphonie, a gentle reminder of this obligation does not, in retrospect, appear unreasonable.

In contrast, there was extended controversy over the language in the intergovernmental Exchange of Notes. Over a number of months, the U.S. side, led by the State Department, suggested various formulations, all of which invoked the obligation to consult with Intelsat before using Symphonie for international operational purposes, but none of which obligated France and Germany (or the U.S.), necessarily, to abide by an Intelsat recommendation. None were accepted by the Franco-German side.

Thus it was to the utter astonishment of the U.S. negotiators that after months of no progress, the Franco-German side proposed the language that was ultimately incorporated in the Exchange of Notes. Not only did it explicitly acknowledge Intelsat Article XIV obligations, but the French and German governments “confirmed their intention. . . of accepting the recommendations of Intelsat insofar as they apply to the Symphonie program.” This language went further than any previous U.S.-drafted proposal, which—consistent with the 1972 launch policy formulation—sought only a commitment to consult with Intelsat without necessarily being bound by Intelsat's conclusions.

The U.S. side quickly accepted this Franco-German formulation, and the diplomatic notes were exchanged in June 1974. With both sides assuming that there would eventually be a successful conclusion to the negotiations, operational preparations for the two launchings had proceeded in parallel. Those launchings took place without incident in December 1974 and August 1975. So far as I know, neither of these satellites was used in a manner bringing it into conflict with Intelsat.

It may be unfair now to pass judgment on policy decisions made more than 25 years ago. The world changes. After all, in the early 1970s, a Republican administration in Washington, worried about Intelsat's economic viability, staunchly defended its international monopoly position. Who could have foreseen that two decades later a Democratic administration would lead the charge to introduce greater competition into international satellite telecommunications by proposing to divide up Intelsat into public and privatized segments, much as was done in 1995 with the Inmarsat consortium? Nevertheless, one can look back at the Symphonie controversy and wonder what all the fuss was about.

Would Europe have committed to develop Ariane if the U.S. launch policy had not included the Intelsat-related provisions? Throughout the debate there were major voices (most loudly in the U.K.) arguing that Europe could not afford such an independent effort and that U.S. launchers could be depended upon. On the other hand, Ariane advocates—primarily, but

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Symphonie Launch Negotiations (continued)

not exclusively, in France—argued not only that the U.S. was not a reliable supplier but also (more cogently, in my view) that if Europe wished to play a major role in the international space arena, it must have a launch capability under its own control. Further, even if the conditions in the 1972 U.S. launch policy were judged to be reasonable, a statement of administration policy could always be unilaterally changed by some future U.S. administration.

By the time the Symphonie negotiations deadlock was broken in the spring of 1974, U.S. launch policy was no longer a front-burner issue in Europe. By early 1973, a stalemate had developed in Europe between the advocates—led by Germany and Italy—of human space flight cooperation with the U.S. by building Spacelab and the advocates—led by France—of achieving a European autonomous launching capability by developing Ariane. This stalemate was broken by the July 1973 “package deal” that avoided having to choose one over the other. Europe decided to go forward with both programs and to create a European Space Agency with a much broader mandate than the European Space Research Organization (ESRO), its predecessor.

Once the decision to develop Ariane was made in the summer of 1973, why did it take almost a year for the Franco-German side to come to closure on Symphonie terms and conditions? And when they did decide to sign up, why did they volunteer provisions for the diplomatic notes that were considerably more restrictive than the language offered earlier by the U.S. side? Perhaps we shall have to wait until historians have access to the files at the Quai d'Orsay for the answers to these questions.

From the Chief Historian (continued)

Organization (ESRO) in 1964, and finally became part of the European Space Agency (ESA) when it was founded in 1975. Each of these events brought its own context, and the fact that the program of the Paris meeting ended with 1975 was a testimony to the importance of the founding of the ESA for U.S.-French relations.

There is also a fourth level of context that is important: the personal level. It is clear that without the trust established by the individuals involved, cooperation can be stymied. There is no doubt of the importance, for example, of Jacques Blamont and his personal relationship with scientists at Goddard Space Flight Center beginning in 1960. This was clear not only from his paper at the meeting, but also from his recent paper “International Space Exploration: Cooperative or Competitive?” in the journal *Space Policy*.

An interesting question for further research is which of these four levels is most important for cooperation to occur. In a recent paper at a meeting sponsored by the NASA History Office on “Critical Issues in the History of Spaceflight,” John Krige—well known for his work on the history of the European Space Agency and its predecessors—studied those at NASA and the U.S. State Department who considered sharing communications satellite and booster technology with Europe in the mid-1960s. He showed that, in these cases, the

need to protect national industry and national security prevailed over foreign policy considerations. So the desire by some to share technology in the 1960s in order to unite European and American interests was very much limited by national interests. There is no doubt that the personal context is constrained by the institutional context, and so on up the line.

The same considerations of national security versus foreign policy were also clearly at work in the papers presented on post-Apollo negotiations and on the French Symphonie satellite. The Symphonie communications satellite experience in the mid-1970s is legendary for its supposed role in convincing the French of the importance of an independent European launcher. As the story goes, because Symphonie was seen as a threat to the financial best interests of Intelsat under its Article 14, at a time when Intelsat was controlled by American interests, NASA would launch the satellite only with assurances that it would remain experimental, not operational. It became clear at the meeting that the French perceive this experience as playing an important role in the development of the Ariane launcher. A paper by Richard Barnes, the NASA European representative at the time of the controversy, gave another view, one that we reprint in this *News & Notes* as a stimulant to further research. It is an interesting question of “counterfactual history,” whether Ariane would have been born without this episode. Perhaps, at least, it would have been greatly delayed.

Although to the outsider it would seem that international cooperation is an instrument of foreign policy that could enhance international relations, the papers given at the conference show that historically things are much more complicated. In his book *International Cooperation in Space*, published in 1965, Arnold Frutkin (in charge of NASA’s international relations at the time) tells of NASA’s early philosophy of cooperation. Frutkin noted that from the start “it was necessary to acknowledge limits to the scope of cooperative programs imposed by the dictates of national security.” He recalled that “International partners were informed quite frankly that collaboration could be more easily arranged in scientific experiments than in booster technology.” Accordingly, “A healthy focus on space science objectives, rather than on the versatile tools of space exploration, was then the final factor in NASA’s developing philosophy of cooperation in space research.”

The conference provided ample evidence supporting Frutkin’s theory, since most of the papers dealt with space science, including relations with Goddard Space Flight Center, cooperative work on the magnetosphere, the FR1 and EOLE projects, and French experiments on the American Orbiting Geophysical Observatory (OGO) and Orbiting Solar Observatory (OSO) satellites.

Numerous historical questions at a number of levels arise from contemplating NASA’s involvement in international programs, which nowadays include not only huge space science ventures, like Cassini-Huygens, but also huge human spaceflight ventures, like the International Space Station. The systematic study of such questions cannot help but illuminate the present as well as the past.

Steve Dick

NEWS FROM HEADQUARTERS AND THE CENTERS

Headquarters

Nadine Andreassen worked on the budget, contracts, grants, awards, and policy documents for Contractor Payment Procedures and International Travel. She continued to plan for the Annual History Review at Marshall Space Flight Center. Nadine had the privilege of displaying NASA History Division publications at the joint History of Science Society (HSS)/Society for the History of Technology (SHOT) meeting in Minneapolis in November. The meeting was Nadine's first at HSS or SHOT and a highlight of the quarter for her. She received a lot of positive feedback and was surprised to learn the extent of interest in NASA history outside of the Agency. She also gave tours of the office to three astronauts and NASA senior management.

Glen Asner and Steve Garber continued to conduct interviews and collect documents for their history of NASA's Decadal Planning Team. They presented an overview of their research at the National Air and Space Museum's Historical Seminar on Contemporary Science and Technology on 17 November 2005. Glen also gave a presentation in November on the history of thermoelectric research at the annual meeting of the Society for the History of Technology. He is pleased to announce the publication of the 2004 Aeronautics and Space Report of the President. He looks forward to overseeing a contract history on lessons learned in return to flight following the *Columbia* Space Shuttle accident.

Colin Fries continued to scan *Current News* from 1967 through 1969. He finished processing the approximately 25 cubic feet of X-33 and X-34 documents gathered by Tony Springer when he was at the Marshall Space Flight Center in the late 1990s. Colin began arranging and describing the John Dailey Associate Deputy Administrator chronological correspondence files, 1993–2000.

John Hargenrader added more scanned NASA *Current News* and some JPL *Current News* files from 1980 to the History Division's electronic database. He also added three files of material on the gravity assist propulsion method to our propulsion file cabinets. He continued to photocopy old, yellowing news clippings on human spaceflight and is now concentrating on scanning deteriorating clippings on Apollo flights after the first human landing.

Jane Odom continued to acquire and appraise new material for the Historical Reference Collection. A number of boxes arrived recently as a result of the Headquarters buyout and right-sizing activities. This new material deals with astrobiology, the Agency's science program, Shuttle-MIR, and Space Station Freedom. Jane appraised a large collection of material donated by the chief scientist's office. Additionally, she assisted with the retirement of the official files of John Schumacher, former Assistant Administrator for External Relations and then Chief of Staff, and supervised an intern who processed a small collection of Equal Employment Opportunity files. The activities of the archival standards workgroup have concluded. The final report will be distributed to Center history contacts soon.

Gabriel Okolski assisted with the publication of two upcoming books in the NASA history series: *The Galileo Mission to Jupiter*, by Michael Meltzer and *Science in Flux*, by Mark D. Bowles. In addition to answering daily public inquiries about the space agency, Gabriel helped with regular research duties and created a Web site on the history of the Hubble Space Telescope. Gabriel looks forward to continuing his work during the upcoming semester.

Steve Garber and Glen Asner are enjoying their research on the Decadal Planning Team and the formulation of the Vision for Space Exploration. Steve looks forward to doing oral histories with several more key participants. He bids a fond farewell to Jennifer Chu, who finished up her internship here last fall, and welcomes aboard Julia Sawyer, a new intern from the University of Maryland. Steve is glad to have Gabriel Okolski, our first Space Grant Consortium student, return in 2006 for a second semester as a NASA History Division intern. Eric Jones, the curator of the online *Apollo Lunar Surface Journal*, has begun a potentially mammoth new undertaking with Brian Lawrence to create a similar *Apollo Flight Control Journal*. Steve looks forward to helping facilitate this very worthy volunteer initiative.

Julia Sawyer is excited to start both her new internship at the History Division as well as her final semester at the University of Maryland; she is looking forward to receiving her BA in science and technology history this May. Julia has already assisted in editing a few oral histories. She will be taking on a variety of projects for the History Division in the future, including the creation of a Web-accessible oral history inventory and the revision of *Research in NASA History*.

Ames Research Center

Donna Z. Lacy, who served as support specialist for the NASA Ames History Office for the past two years, chose retirement as of 3 January 2006. Donna spent 23 years in Government service, all at the NASA Ames Research Center, and most of that in the Ames Administration building. She supported many senior executives at the Center, including Jack Boyd and Center Directors Harry McDonald and Scott Hubbard. Her deep knowledge of Center and Headquarters operations, her timely response to requests from NASA's industry and academic partners, and her years of rapport with people who got things done made her an asset to the Center and to its History Office. Future historians, looking through recent Center records, will forever value her meticulous old-school approach to filing. We wish her well.

Hangar One at Moffett Field has been in the news lately. Hangar One is a massive enclosure built in 1932 to house the U.S. Navy's west coast dirigible, the USS *Macon*. After the *Macon* was lost at sea in 1935, Hangar One served as an aircraft hangar for the U.S. Naval Air Station at Sunnyvale, later renamed Moffett Field. In 1994, the NASA Ames Research Center, resident at Moffett Field since 1939, took over as custodian of the field from the Navy. In 2002, high levels of polychlorinated biphenyls (PCBs) were found to be leaching from the exterior panels of Hangar One. The hangar was shut and the Navy coated its exterior with an encapsulant. The Navy now needs to decide whether to encapsulate again or seek a more permanent solution to the presence of toxic materials.

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News from Headquarters and the Centers (continued)

The politics behind the historic preservation of Hangar One are complex. The U.S. Navy retains responsibility for remediating any hazardous conditions in the hangar, within the bounds of environmental protection and historic preservation laws. NASA Ames is the steward of the hangar and any plans for its future. In studying its various options for remediating the hazardous materials on the hangar, the Navy recently announced that it would not rule out full demolition of the hangar. Local communities and preservation groups reacted loudly and swiftly. The hangar itself does not hold historic landmark status, though it is a contributing element to the Shenendoah Plaza historical district at Moffett Field. In an area generally devoid of distinctive architecture, Hangar One is one of the most recognizable buildings in Silicon Valley.

Plans for the NASA Research Park—essentially Moffett Field, outside the Ames gate, reconfigured for education, research, and commercial purposes—prominently display Hangar One being converted into a massive science education museum, named SpaceWorld Hangar One. Thus, NASA Ames has begun to explore how best to reconfigure the hangar once the Navy decides how it will remediate. For example, NASA Ames issued an Announcement of Opportunity for developers, asking how they might replace the existing siding with photovoltaic panels and pay for the project with the electricity generated by those panels. The initial response was pessimistic, but discussions continue. In addition, NASA Ames has begun to more actively collect information on the hangar, anticipating the need for an Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) report (a detailed architectural report). Many of the historical records pertaining to Hangar One reside with the Moffett Field Historical Museum, staffed largely by ex-Navy officers (<http://www.moffettfieldmuseum.org/>).

Those within the NASA history community who would like to learn more about the plans for Hangar One may contact Keith Venter, an architect for the Center and the NASA Ames Historic Preservation Officer (Keith.Venter@nasa.gov). Sandy Olliges of the NASA Ames Office of the Director of Safety, Environmental, and Mission Assurance is NASA's main point of contact for the public discussions about the remediation of the hangar (Sandra.M.Olliges@nasa.gov).

Dryden Flight Research Center

Mike Gorn is now Chief of Code T, which includes the history office as well as exhibits, public affairs, and the innovative partnerships programs. Nevertheless, he continues to be intimately involved in the history program, most recently by securing a new, single location for the history office and its archives, artifacts, and film library. In addition, his article, "Who was Hugh Dryden and Why Should We Care?" was recently published in *Realizing the Dream of Flight*, edited by Virginia P. Dawson and Mark D. Bowles.

Christian Gelzer is looking forward to sending the *Lunar Landing Research Vehicle* monograph off to press, pending the final reading of manuscript. The *Thrust Vectoring* monograph is in line to follow. He has also begun conceptualizing the revamping of the visitor's center in conjunction with the upcoming 60th anniversary of NASA Dryden. On display will be artifacts and imagery, as well as film clips, all covering the work done by NASA at the edge of this dry lakebed. And he continues piecing together material

for a monograph on truck fairings, a story tracing back to the early 1970s and work done by several engineers at Dryden that led to the shape of long-haul trucks of today.

Peter Merlin continues working on the Dryden photo history book (“A Place Like No Other”), as well as on a NASA Headquarters project to trace the diffusion of NASA-developed technology for commercial aviation. That project has come to include both a white paper and visual material, some of which is expected to be used in kiosks at various airports, all of it highlighting NASA’s contributions to commercial aviation. Peter spearheaded a trip with Mike Gorn and Christian Gelzer to an offsite storage facility where the three examined pallets of documents related to a Boeing project, pending their destruction or inclusion into archives. The trio took the opportunity to visit the crash site of the XB-70, an aircraft that NASA used to explore extended Mach 3 flight.

Curtis Peebles made time to draft an article on safety at NASA for publication in the journal *SAFE*. He continues to conduct oral interviews with members of the X-43 team and research for the monograph he is writing on the X-43 project, which is his primary obligation. He has edited more than 10 interviews in the last quarter and has conducted nearly as many in the same time. His second edited volume of the *Spoken Word: Beyond the Sky* is in page layout.

Betty Love has completed the first pass through the Roy Bryant collection, weeding out duplicates and extraneous items. Bryant joined NASA in 1958, two weeks after the Agency emerged from NACA. He died in 2005, leaving an enormous and varied collection.

The Center hosted James R. Hansen for a well-attended talk on Neil A. Armstrong. Armstrong, of course, worked for NACA, first at Glenn (then Lewis Laboratory) and then at Dryden (then the Flight Research Center), before going to Houston for astronaut training. Hansen served on Christian Gelzer’s dissertation committee—it was a reunion, of sorts.

Glenn Research Center

The temperatures in Cleveland have cooled, but the Glenn History Office is as busy as ever. In December, two awards ceremonies were held to recognize the hard work and dedication of the teams that made two of our most recent publications so successful. The team that made the “*Realizing the Dream of Flight*” symposium possible was recognized with certificates. Dr. Virginia Dawson and Dr. Mark Bowles, the editors of the book, were on hand to sign copies for those being recognized. Several days later, the *Of Ashes and Atoms* DVD production team were presented with their NASA Honor Awards for Group Achievement. Glenn’s new Center Operations Directorate head, Ken Aguilar, was on hand for both events.

Anne Power is processing the recently discovered records of the Center’s old social activities group, Lewis Social Activities Committee (LeSAC). The photographs and records tell a fascinating story of what life was like for employees at the Center in the 1950s and 1960s. Activities ranged from formal dances to family picnics, themed mixers to nights at the playhouse. The two highlights were the employee picnic and the children’s Christmas play. We hope that once fully processed, this collection will serve as a valuable record of the social history of Glenn.

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News from Headquarters and the Centers (continued)

Contract Archivist Nora Blackman has had some interesting projects to keep her busy in the cold winter months. She worked with the Glenn Research Center (GRC) Center Director's Office, the GRC Imaging Technology Center, and Rebecca Wright from the Jet Propulsion Laboratory (JPL) on the video Oral History of Dr. Julian M. Earls, retiring GRC Director. Research into the history of NASA artists provided the basis for an exhibit she created for the GRC Visitor's Center, which ran in conjunction with a celebration of NASA Art at Glenn. In addition, 24 items from the archives' art collection were used at the event, and a portable/flat panel exhibit that Nora has been working on with the Center's graphics department was completed in time to be used at the event. Developing content for the GRC History Program Web site, indexing Center newspapers, and processing records and artifacts from building rehabilitations and retirees have been constant projects, and the Reference Desk keeps her busy with the odd and interesting queries of our staff and the general public.

Goddard Space Flight Center

On 6 October, the Goddard Library held its annual Open House and unveiled its new Web site.

The Wallops Flight Facility Library also held its Open House to celebrate its 60 years of missile research, since 1945. The digital Wallops Balloon Technology Repository was showcased at the Open House and was presented at the International Conference on Knowledge Management in Charlotte, North Carolina, as well. The Balloon Repository has been much enhanced and is now open to the public.

To support the Center's knowledge management efforts in a variety of ways, Jessica David continuously upgrades the Goddard Project Directory and the taxonomy team continues to capture and map the metadata of the Center's missions (such as the Swift Mission) into its Digital Assets System. Patrick Healey is working with various teams to capture project lore by videos and is beginning a collaboration to do an oral history with the Landsat Legacy Team. Jane Riddle strives to collect Mishap Investigation Board (MIB) reports that contain root causes, corrective actions, recommendations, and lessons learned to benefit Goddard's potential, planned, and ongoing missions. Jane is collaborating with Code 250 to compile a central repository of NASA Goddard MIB reports.

Jet Propulsion Laboratory

Erik M. Conway

During the last quarter, I have focused on archival research into the Mars Observer, Mars Global Surveyor, and Mars Pathfinder projects. I intend my next book project to focus on robotic Mars exploration post-Viking. I've largely completed the archival phase, and over the next few months, I will be doing oral histories with participants in these projects and with officials who were at the relevant programmatic levels in NASA. I also intend to interview a few key people at Ames and Langley Research Centers, and Goddard and Marshall Space Flight Centers, who contributed to these efforts.

In collaboration with Langley Distance Learning and Lockheed, the Mars Program outreach folks here at JPL are planning a Viking 30th Anniversary effort that will include a Web site,

video interviews with Viking survivors, and limited digitization of interesting documents. They are working with the Mars Visualization Alliance to help their museum partners produce activities for local audiences around the nation. NASA Headquarters is considering organizing a Capitol Hill event, and JPL is standing by to help with any necessary products if that event happens this summer. I'm collaborating with JPL's efforts, and I hope we turn up and preserve some interesting material and memories that might otherwise vanish soon.

In other Viking-related news, the JPL Archives branch is beginning to process a large collection of Viking Orbiter project material that has been in storage the last 20 years or so. Processing of Mars Pathfinder records is still ongoing.

Project Prometheus closed down at JPL in October, and I contributed material for its final report. I also edited and placed in its project library oral histories I had done with Prometheus managers in pursuit of my idea to track the larger JPL projects as they evolve. With Prometheus gone, I will continue Mike Hooks' effort to document Mars Science Lab in this fashion. Later this year, I'll begin doing the same thing with the managers of the Space Interferometry Mission.

Donning my contract historian hat, Langley Research Center has decided to close out my atmospheric science history contract and allow me to complete the book on my own schedule. I received the NASA peer-reviewer comments in early December and I plan to carry out some additional research in response. The most significant criticism of the manuscript is that I do not deal with the modeling work done at the Goddard Institute for Space Studies (GISS) in New York very effectively. I've scheduled a research trip to GISS in January to help correct this. I hope to have all of the revisions done by summer.

Johnson Space Center

The NASA Johnson Space Center (JSC) History Office presented two unique programs this past fall.

"The Impact of NASA on the Lone Star State" was presented at the Montgomery Community College in Conroe, Texas, in October. Team members Dr. Jennifer Ross-Nazzal and Sandra Johnson, along with student researcher Kevin Brady, provided an hour-long program on the social, cultural, and economic impact on Texas during the years of 1962 through 1972. A large crowd of college and high schools students, community residents, and staff members attended.

JSC Historian Jennifer Ross-Nazzal presented a paper at the State University of New York-New Paltz, as part of its Women, Gender, and Science Conference. Her "Women of NASA" paper was included in a panel called "Women and Big Science: A Panel Discussion of Women Working in Government Laboratories." Jennifer highlighted the careers of NASA female scientists, researchers, and engineers, including Sally Ride and Carolyn Huntoon.

Also, the team recently delivered another 42 hours of tape rescues to the JSC History Collection. These rescues feature interviews conducted during the 1960s and 1970s and join the previous 161 hours rescued and delivered this past fiscal year. The ongoing

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News from Headquarters and the Centers (continued)

rescue project began in 1996 to transfer data from deteriorating media (reel-to-reel tapes) to accessible media (CD-ROM). The JSC History Collection at the University of Houston-Clear Lake retains the CDs of these rescues and the hundreds of others previously preserved. For more information about the availability of these and the entire collection, contact archivist Shelly Henley Kelly, (281) 483-3936.

Kennedy Space Center

NASA's Kennedy Space Center marked the 40th anniversary of the use of crawler transporters in advancing space flight on 13 January 2006. In January 1966, the crawler completed its first successful move with a 10.6-million-pound launch umbilical tower. It moved three-quarters of a mile in about 9 hours. Throughout 40 years of service, the two crawlers have moved more than 3,500 miles and carried 7 vehicles. The American Society of Mechanical Engineers dedicated the crawler transporters as National Historic Mechanical Engineering landmarks on 3 February 1977.



Kennedy recently celebrated the 40th anniversary of Crawler transporters, which were first used on 13 January 1966.

Marshall Space Flight Center

Calendar year 2005 was a busy year for the history program at the Marshall Center, and 2006 will mean sharing the history of the Center with even more employees, managers, researchers, and the general public.

During 2005, the Marshall historian responded to an estimated 300 requests for historical information, processed hundreds of new archival elements, and began a series of new research projects for Marshall's managers.

Requests for information about Marshall's role in the Saturn/Apollo era increased this year in response to NASA's new lunar initiative. Scientists and engineers asked the historian for information about the Center's involvement in the Saturn engines, stages, and instrument unit. They also wanted to learn more about the Lunar Roving Vehicle, Apollo program management, and much more. In addition to responding to these requests, the Marshall historian hosted several visits from academic researchers and space historians who spent several days working in the Center's archives. The year also included historical data interchanges with historians, archivists, and librarians at the U.S. Army history office in Huntsville, the Saturn archives at the University of Alabama in Huntsville, the Redstone Scientific Information Center, and the United States Space and Rocket Center. On a day-to-day basis, the Marshall historian responded to e-mail and telephone requests from hundreds of persons wanting information about the Center's history. Interest in history at Marshall is increasing. In the early 1990s, many employees at Marshall could practically recite the Center's corporate history based on their own involvement. Now, many of those

long-time employees have retired. Providing historical information to new employees today often involves helping them understand the historical context as well. Not all requests require details related to the history of a program in a social, political, or economic context. The information may be useful, however, when key leaders face major decisions points. This may mean spending more time and resources answering a history request at Marshall. However, it adds value to the effort.

Archival work at Marshall also increased in 2005. Knowledge management has become a topic of increasing discussion among Government and corporate managers over the last few years. Certainly, history has an important role to play in that area. The Marshall History Office spent part of 2005 reformatting its historical data so that technicians can eventually migrate much of the data to the Center's knowledge management servers. The effort will continue in 2006. This work started in late 2004 by converting much of the data to portable document format (PDF). NASA historians and archivists attending the 2005 history conference in Houston learned more this format. Tom Carson, director of the congressionally funded New Economy Institute based in Chattanooga, gave a presentation involving the PDF format. Carson and others from the New Economy Institute used the same format in 2004 to convert 44 years worth of *Marshall Star* newspapers to digital searchable format. In addition to digitizing much of the Marshall collection, a lot of traditional archival work occurred in the archives in 2005. For example, the Marshall historian converted a 500-volume library of works related to space history from a rudimentary cataloging system to a traditional library system. The history office also developed a new system to help employees who need access to historical program reports. The collection is now arranged chronologically in archival storage boxes that are easily accessible to those who visit the archive. Cataloging and indexing will begin in 2006.

The Marshall historian will continue preparing detailed written historical reports for managers in 2006. In 2005, that work involved researching and writing reports on more than a half-dozen historical topics ranging from Apollo procurement practices to the Saturn V instrument unit. Work is now in progress on a history of the Fastrac engine that was built in-house in the 1990s by Marshall engineers to power the X-34 technology demonstrator. The history will demonstrate how Marshall used the Fastrac project to provide many young engineers with direct, hands-on rocket-building experience. The Marshall historian has already conducted about a dozen interviews with Fastrac participants to learn more about the project.

The Marshall Center continues to show its true appreciation for history. Late in 2005, the Marshall Association hosted a visit to the Center by Auburn University Historian James Hansen. Hansen spoke to managers and employees about his new biography of Neil Armstrong. Following a luncheon presentation, Hansen also autographed copies of the new book.

History will also be an important part of the Marshall Center in 2006, as the Marshall historian works with the Headquarters History Division to host this year's annual history conference, 4 through 6 April. A different NASA field Center hosts the conference each year. This year will be the second time that Marshall has served as host. Those interested in attending the conference will be hearing more from NASA Historian Steven Dick in the weeks ahead.

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News from Headquarters and the Centers (continued)

Stennis Space Center

The Stennis Space Center History Office remains focused on documenting the major events at Stennis that have surrounded Hurricane Katrina. The first Space Shuttle main engine test following the hurricane was one such milestone event, and the history office was there to archive documents related to this test, such as photographs and coverage generated. The Stennis History Office also collected and provided significant information to the Katrina Report, a historical record produced by Stennis of the impact that both Stennis and the Michoud Assembly Facility received from Hurricane Katrina. Additionally, many oral history interviews have been conducted and continue to be recorded from key workers, both during and after the storm.

ARCHIVAL UPDATE

National Archives and Records Administration Targeted Assistance Program

Edited by Deborah L. Demaline, NASA Glenn Research Center
and Galen Wilson, National Archives and Records Administration

The National Archives and Records Administration (NARA) has traditionally been known as the place where records go when one is done with them. More recently, NARA has emphasized the philosophy of records' life cycles and emphasized the importance of managing records properly from the time they are created. The practical aspect of this emphasis is the Targeted Assistance (TA) program in which NARA partners with Federal agencies to solve records management conundrums regarding agency space. To turn this new philosophy into reality, NARA hired a staff now numbering some 40 Senior Records Analysts and stationed them both in Washington, D.C., and around the country. NARA foots the bill for their salary; agencies generally support the endeavor by funding travel costs and providing knowledgeable staff to work alongside the NARA employees in addressing local projects.

NASA was one of the first Federal agencies to recognize TA's potential and to cash in on its opportunities. To date, GRC, JSC, KSC, and the JPL have cooperated with NARA regions in outlining unique partnership goals at each Center. Here are some highlights.

Since 2001, Glenn Research Center and NARA's Great Lakes region have enjoyed mutual advantages of cooperation. Record Manager Kevin Coleman and Records Management Support Service Contractors (SSCs) Debbie Demaline and Bob Arrighi have worked with Senior Records Analyst Galen Wilson on numerous projects. Hundreds of noncurrent program and project record boxes have been assessed for archival value, including those relating to the Rocket Engine Test Facility, the Plum Brook Reactor Facility, and Space Station Freedom. Several thousand 16-mm films, including much unique footage, have been inventoried. An internal records management audit plan and self-assessment to review records holdings in GRC offices are about to be launched. Galen has regularly taught records-management training classes tailored for front-line workers and management, and an online records training course is planned

for this coming year. Galen will also be working with Bob Arrighi this year to document the history of GRC's wind tunnels.

Johnson Space Center has enjoyed a TA relationship with NARA's Southwest Region since 1999. Senior Records Analyst Michael Baimbridge has worked with JSC Records Manager Nancy Hutchins to advise International Space Station staff on retention periods for imagery and still photography. Michael teaches records management classes at JSC every quarter and developed both a senior-level briefing and a training class on vital records. He was teaching the latter at JSC the day Katrina hit New Orleans. Michael has also consulted extensively with JSC engineers and IT staff on electronic records inventory and preservation.

Four hurricanes swept across Florida in summer 2004. One left many boxes of records stored in the Vehicle Assembly Building at KSC sitting in water. Delays in gaining the access to the building compounded the situation, allowing mold to flourish. Kennedy Space Center Records Manager Marilee Tewkesbury contacted Donna Read, Senior Records Analyst with NARA's Southeast Region, for advice on dealing with the problem of salvaging important records while guarding the safety of workers. Donna researched and provided information on handling water-damaged records, necessary salvage steps, confirmation of backup copies elsewhere, and final disposition of damaged materials.

The Jet Propulsion Laboratory is conducting a lab-wide records inventory with assistance from Cathy Westfeldt, Senior Records Analyst with NARA's Pacific Region. This mammoth and long-term project is carried out through multiday site visits from Cathy at least once a month, working with JPL Records Manager Kay Schardein.

Last, but far from least, a team of NARA Senior Records Analysts worked with NASA Records Officer Patti Stockman to write the new records schedule for programs and projects, recently published as Schedule 8, items 101–113.

Do any of these scenarios make you think, "Hey, I could use TA, too"? You can read details about the TA program at NARA's Web page, <http://www.archives.gov/records-mgmt/initiatives/targeted-assistance.html>. Or contact NARA's Appraisal Archivist for NASA records, Yvonne Wilson, at (301) 837-3143 or by email at yvonne.wilson@nara.gov. She will refer you to a Senior Records Analyst nearby.

OTHER HISTORY NEWS

Loss of Jim Tomayko

The History Division is sad to report the death of James E. Tomayko, Carnegie Mellon University professor and author of several NASA history manuscripts. Jim died 9 January 2006 at the age of 56 from a rare neurological illness.

The NASA history community will remember Jim as the author of "Computers in Spaceflight: the NASA Experience" (NASA Contractor Report 182505, 1988);

continued on next page

Other History News (continued)

Computers Take Flight: A History of NASA's Pioneering Digital Fly-By-Wire Project (NASA, SP-4224, 2000); and the *Story of Self-Repairing Flight Control Systems*, (Dryden Historical Study #1).

Writing history was just one of Jim's many talents. He had multiple advanced degrees, including a master's degree in Chinese, a doctorate in social studies and education, and a second doctorate in history. His day job was in the field of computer science. Jim served as a professor in Carnegie Mellon University's School of Software Engineering (SCS) and as a part-time senior member of the Software Engineering Institute (SEI). He founded and directed CMU's Master in Software Engineering program.

Even as his neurological illness began to restrict his mobility and his ability to communicate, Jim remained active in both history and computer science. He will be greatly missed by those familiar with his unflinching kindness and indomitable thirst for knowledge.

National Air and Space Museum: Division of Space History

Division of Space History (DSH) curators worked with Bert Rutan and Paul Allen on the acquisition of SpaceShipOne, the vehicle that took the Ansari X-Prize in 2004 by making two suborbital space flights within a one-week period. Owned by Mojave Aerospace Ventures, a joint venture of Rutan and Allen, the SpaceShipOne experimental vehicle is the first privately funded reusable passenger craft to make repeated roundtrips into space. It landed at Dulles International Airport at noon on 1 August 2005. Pilot Mike Melvill, veteran of two of those flights, delivered SpaceShipOne to NASM collections staff and space history curator Valerie Neal. The spacecraft was later hung in the "Milestones of Flight" gallery near the "Spirit of St. Louis" and the Bell X-1 aircraft. To celebrate the unveiling of this new acquisition, NASM held a press conference on 5 October 2005. At the same time, NASM introduced a new style of interactive kiosks in the Milestones gallery, allowing visitors to view footage of the spacecraft in flight; explore SpaceShipOne's historical context; learn more about the background of the project; and study its cockpit through seamless 360-degree, high-resolution photography. The kiosks also will feature still photographs and concise labels describing the artifact's accomplishments and design features and the people behind it.

NASM completed the restoration and final moves of three flown Gemini spacecraft. The Gemini VI-A capsule—which had earlier moved from the St. Louis Science Center to the Omniplex Science Museum in Oklahoma City, Oklahoma, after undergoing restoration—made a final move to the nearby Oklahoma History Center. The center held a dedication for this exhibit on 15 November 2005. In late 1965, Oklahoma astronaut Tom Stafford flew Gemini VI with Wally Schirra, and the two steered their spacecraft to a rendezvous with the Gemini VII spacecraft now on exhibit at the Udvar-Hazy Center. The Gemini X spacecraft, which had flown in 1966, moved to the Kansas Cosmosphere for display in the "Mollett Early Spaceflight Gallery" at its opening in June 2005. And the Gemini XII spacecraft left the Goddard Space Flight Center, Greenbelt, Maryland, in October 2005, bound for the Adler Planetarium in Chicago, where it will go on display in 2006, after a stop at the Kansas Cosmosphere for restoration.

As part of a process initiated by NASM Collections in early 2005 to clean out the Garber Facility as much as possible of things that could go on loan, Michael Neufeld sought out borrowers for German missile artifacts. The first deal concluded is one with the Kalamazoo Aviation History Museum (also known as the Air Zoo) to assemble a collection of original German V-1 parts we have into a fully restored V-1 cruise missile. NASM and Kalamazoo have agreed to the wording of a restoration contract and the objects will go out early in 2006. We have also agreed with Kalamazoo to send them the Apollo Command Module Simulator, and the details of that agreement are under negotiation.

Paul E. Ceruzzi published "Internet Alley: High Technology in Northern Virginia, 1957–2000," *Icon: Journal of the International Committee for the History of Technology* 10 (2004): 18–33, which appeared in September 2005.

Martin Collins edited *Showcasing Space*, volume 6, Artefacts Series: Studies in the History of Science and Technology (London; East Lansing, MI: Science Museum, Michigan State University Press, 2005), with Douglas Millard, to which he also contributed the essay, "The Iridium Communications Satellite: An Artefact, System and History," pp. 116–41. The book is a contribution to a joint research and publication effort of the Science Museum, the Smithsonian, and the Deutsches Museum. The volume was based, in part, on a seminar organized in 2002 and includes essays by NASM curators Martin Collins, Cathleen Lewis, and David DeVorkin, museum specialist Brian Nicklas, as well as by former Lindbergh Chair, Philip Scranton.

David E. DeVorkin published the following articles and reviews: "SAO During the Whipple Years: The Origins of Project Telescope," in W. Orchisten and B. Hevly, eds., *Festschrift for Woody Sullivan* (Kluwer, 2005); "The Art of Curation: Collection, Exhibition, and Scholarship," in Martin Collins and Douglas Millard, eds., *Showcasing Space* (London; East Lansing, MI: Science Museum, Michigan State University Press, 2005), pp. 159–68; Review of Michael W. Friedlander, "A Thin Cosmic Rain: Particles from Outer Space," *ISIS* 2005; and Review of Jean-Louis Tassoul and Monique Tassoul, "A Concise History of Solar and Stellar Physics," *Journal for the History of Astronomy*, 2005.

Roger D. Launius published "What Space Historians Should Know about the NASA Programme," in *The Extended ESA History Project: Proceedings of the Concluding Workshop*, 13–14 April 2005, ESA Headquarters, Paris, France (Noordwijk, The Netherlands: ESA SP-609, 2005), pp. 7–27. His paper from the 2004 International Astronautical Federation annual meeting was published as "Got Filk? Lament for Apollo in Contemporary Science Fiction Folk Music," *Quest: The History of Spaceflight Quarterly* 12, No. 4 (2005): 6–14. Launius also published a popular article, "Robots, Humans, and the Exploration of the Solar System," *Space Times: The Magazine of the American Astronautical Society* 44 (September/October 2005): 9–13, that deals with the age-old humans-versus-robots debate in space exploration. While valid arguments support using each for exploration, perhaps a third type of explorer will bring together the best features of each. Technological developments now beginning to take place in some settings might permit a true merger—humans equipped with robotic parts or machines possessing sentient qualities.

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Other History News (continued)

Cathleen S. Lewis published “The Birth of Soviet Space Museums: Creating the Earthbound Experience of Space Flight during the Golden Years of the Soviet Space Programme, 1957–1968,” in *Showcasing Space*, Martin Collins and Douglas Millard, eds., pp. 142–58. Volume 6, Artefacts Series: Studies in the History of Science and Technology.

Through the Smithsonian Institution, Michael Neufeld has accepted a contract with Alfred A. Knopf of Random House, Inc., for a major scholarly biography of Dr. Wernher von Braun, tentatively titled *Von Braun: Dreamer of Space, Engineer of War*. If plans hold, the book will be published in time for the 50th anniversary of Sputnik in October 2007.

Frank H. Winter presented the paper, “The Silent Revolution, Or, How R.H. Goddard Helped Start the Space Age,” Works-in-Progress presentation, Washington, D.C., 22 November 2005.

CALLS FOR PAPERS AND PROPOSALS

The book review office of the *Public Historian* welcomes submissions of a variety of published and unpublished material. In addition to books, the journal likes to commission reviews of the work product of public historians (“gray literature”). We encourage historians to send samples of unpublished work created for clients and agencies to us for review. Please submit review copies to:

Book Review Office
The Public Historian
Department of History, Mail Code 9410
University of California
Santa Barbara, CA 93106-9410

The American Astronomical Society (AAS) invites submissions for its 209th semiannual meeting, which will be held jointly with the American Association of Physics Teachers (AAPT) in Seattle, Washington, 7 through 11 January 2007. Contributions may be either oral or poster (both types are referred to individually as “papers”). All members may contribute presentations, which are sorted and grouped by a committee of volunteers shortly after the abstract deadline for each meeting. The deadline for proposals is 15 May 2006. Further rules governing the submission of contributed papers are published in the preliminary announcement for each meeting, which is sent in print form to each AAS member and also appears on the AAS Web pages approximately two months before the actual meeting date. For further information on the meeting and how to join the society, see the AAS Web site at <http://www.aas.org>.

The Society for the History of Technology (SHOT) will hold its annual meeting in Las Vegas, Nevada, 12 through 16 October 2006. The Program Committee is seeking proposals for both individual papers and complete panels. The Program Committee invites paper and panel proposals on any topic in the history of technology, broadly defined. Of special interest for 2006 are proposals that engage with the following themes: 1) Technology, Games, and Entertainment; 2) Technology, Race, and Ethnicity; and 3) Conversations between History of Technology and Other Disciplines. For the 2006 meeting, the Program Committee is also encouraging unconventional sessions, that is, session formats that vary

in useful ways from the typical three/four papers with comment. These might include (but are not limited to) sessions with no formal commentator, workshop-style sessions with papers that are precirculated electronically, or “author meets critics” sessions. The deadline for proposals is 15 March 2006. Additional information about the 2006 meeting can be found online at http://www.shot.jhu.edu/Annual_Meeting/Annual_Meeting_Main_Page.htm. For questions about the program themes, submission guidelines, or any other aspects of the Call for Papers, please email Jen Light, Program Committee Chair: light@northwestern.edu.

PUBLICATIONS

NASA Publications

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

Forthcoming NASA Publications

Mission to Jupiter: A History of the Galileo Project, by Michael Meltzer. This informative manuscript discusses the Galileo spacecraft project from its inception to its conclusion. It should be published in spring 2006.

Nose Up: High Angle-of-Attack and Thrust Vectoring Research at NASA Dryden, 1979–2001, by Lane Wallace. This monograph examines three different programs that explored high-angle of attack flight: the F-18 High Alpha Research Vehicle (HARV), the X-31, and the F-15 Advanced Controls Technology for Integrated Vehicles (ACTIVE). This publication should be published in 2006.

Unconventional, Contrary, and Ugly: The Story of the Lunar Landing Research Vehicle, by Gene Matranga, Wayne Ottinger, and Cal Jarvis. This monograph recounts the history of the Lunar Landing Research Vehicle (LLRV) from its inception through its service as a training tool at the Manned Spaceflight Center (now Johnson Space Center). The well-illustrated monograph should be published in 2006.

Rockets and Men: Volume II by Boris Chertok, edited by Asif Siddiqi. The second volume of the four-part series of memoirs provides insight into the post-World War II Soviet missile and space program. Chertok discusses his return to the Soviet Union in 1947, the reproduction of the German V-2, and the development of a domestic Soviet rocket industry at the famed NII-88 institute in the Moscow suburb Podlipki (now called Korolev). The memoir covers numerous Soviet technological feats, including the development of the world's first intercontinental ballistic missile, the launch of Sputnik, and the first generation of probes sent to the moon. This volume is due for publication in spring 2006.

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Publications (continued)

The Wind and Beyond: A Documentary Journey into the History of Aerodynamics in America, Volume II: Reinventing the Airplane, edited by James R. Hansen, with Jeremy Kinney, D. Bryan Taylor, and J. Lawrence Lee. The second volume in *The Wind and Beyond* series discusses the airplane design revolution of the 1920s and 1930s and the quest for improved airfoils. The volume is slated for publication in spring 2006.

Science in Flux: NASA's Nuclear Program at Plum Brook Station, 1955–2000, by Mark D. Bowles. This book explores the broad history of the nuclear research program at NASA's Plum Brook Station. It is a tale of nuclear research, political change, and the professional culture of the scientists and engineers who devoted their lives for over 15 years to the facility. In the attempt to develop nuclear rockets and the challenge to clean up the radioactive ruins from the site that housed the search is the story of one of the most powerful test reactors of its day. Its history reveals the perils, potentials, and challenges of that nuclear quest and science in flux. This volume is due for publication in spring 2006.

Non-NASA Publications

Philip Chien, “Columbia: Final Voyage: The Last Flight of NASA’s First Space Shuttle,” 464 pages. <http://www.sts107.info>. CD-ROM and Book, ISBN: 0387271481. The Web site also includes additional information about the mission and a sneak peek at what’s on the CD-ROM.

W. D. Kay, *Defining Nasa: The Historical Debate Over The Agency’s Mission* (State University of New York Press, June 2005), 247 pages, ISBN: 0791463818.

Mary Loraine Brinton, *40 Years with NASA and Other Memories* (Washington House, August 2005), 144 pages, ISBN: 1932581936.

Terry Hope, *Spacecam: In Co-Operation With NASA* (David & Charles Publishers, September 2005), 256 pages, ISBN: 0715321641.

New NASA Web Sites

Our new Web site about the Hubble Space Telescope (HST) (<http://history.nasa.gov/-hubble/index.html>) offers a wealth of information about the HST, including a brief history, bibliography, chronology, related reports and articles, and relevant Web links.

The Apollo 204 investigation materials Web site (<http://history.nasa.gov/Apollo-204/inv.html>) has been updated to include links to .pdf files of Colonel Frank Borman’s testimony to Congress.

The FY 2004 edition, as well as older editions, of the interagency “Aeronautics and Space Report of the President” is now available from <http://history.nasa.gov/presrep.htm> on the Web.

AEROSPACE HISTORY IN THE NEWS

First Female NASA Deputy Administrator

Shana L. Dale was sworn in as NASA Deputy Administrator on 29 November 2005. A graduate of the California Western School of Law, Dale is the first woman and the youngest person in the history of the Agency to be appointed to the position. As Deputy Administrator, she oversees the daily activities of NASA Headquarters mission support offices, including the offices of the General Counsel, the Chief Engineer, and Strategic Communications. She is the second-highest ranking official within NASA.



Prior to joining NASA, Dale served within the Executive Office of the President as the deputy director for Homeland and National Security for the Office of Science and Technology Policy (OSTP). Her earlier experience at OSTP included stints as Chief of Staff and General Counsel. As staff director of the House Science Committee's Subcommittee on Space and Aeronautics from 1995 to 2000, Dale participated in drafting the Commercial Space Act of 1998. She also served from 1991 to 1995 as Republican Counsel for the Science and Space Subcommittees of the House Committee on Science, Space, and Technology.

Willis Shapley Dies

Former NASA Associate Deputy Administrator, Willis Harlow Shapley, passed away on 24 October 2005 at the age of 88.



Shapley joined NASA in 1965 and served in the position of Associate Deputy Administrator until 1975. As the principal senior assistant to the NASA Administrator during these years, he oversaw the staff offices for Public Affairs, Congressional Affairs, International Affairs, and Department of Defense and Interagency Affairs.

After retiring from NASA, Shapley worked as a consultant to, among others, the American Association for the Advancement of Science, the Office of Management and Budget, and the Office of Science and Technology. Shapley returned to NASA after the *Challenger* accident at the request of NASA Administrator James C. Fletcher. He aided the post-*Challenger* return-to-flight effort by serving again as Associate Deputy Administrator from March 1987 to October 1988.

Prior to joining NASA, Shapley worked at the Bureau of the Budget (BOB, now the Office of Management and Budget). He received a bachelor's degree from the University of Chicago in 1938 and served in positions of increasing responsibility in the BOB's Military Division from 1942 to 1965. He was the son of renowned astronomer Harlow Shapley, who directed the Harvard College Observatory from 1921 to 1952.

UPCOMING MEETINGS AND EVENTS

2 March 2006, The Society for History in the Federal Government (SHFG) will hold its Annual Spring Conference at the Ronald Reagan Building in Washington, D.C. For more information, see <http://shfg.org/tmeetings.html>.

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

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

From 25 to 28 March 2006, the National Air and Space Museum will host its 18th annual Mutual Concerns of Air and Space Museums Symposium in Washington, DC. The full agenda for the symposium is now on the National Air and Space Museum's Web site at <http://www.nasm.si.edu/mutualconcerns>.

From 19 to 22 April 2006, the 98th annual meeting of the Organization of American Historians (OAH) and the 28th annual meeting of the National Council on Public History will be held jointly at the Hilton Washington Hotel in Washington, D.C. Visit <http://www.oah.org/meetings/2006/> for more information.

From 1 to 4 June 2006, the Policy History Conference of the Journal of Policy History will be in Charlottesville, Virginia, at the Charlottesville Omni Hotel. For more information about the conference, see <http://www.slu.edu/departments/jph/conf2006.htm>.

From 1 to 4 June 2006, the Department of Physics and Astronomy of the University of Calgary will host the 208th meeting of the American Astronomical Society (AAS). The meeting will be held at the Hyatt Regency Hotel located in downtown Calgary, Canada. For more information, see <http://www.ism.ucalgary.ca/meetings/casca06/english/index.html>.

From 8 to 10 June 2006, the annual meeting of the Business History Conference (BHC) will take place in Toronto, Canada, at the Munk Centre for International Studies of the University of Toronto. For more information, see <http://www.h-net.org/~business/bhcweb/>.

From 15 to 20 August 2006, the International Committee for the History of Technology (ICOHTEC) will hold its 33rd symposium, "Transforming Economies and Civilizations: The Role of Technology," in Leicester, United Kingdom. For more information on the symposium, see <http://www.icohtec.org/>.

From 19 to 21 September 2006, the American Institute of Aeronautics and Astronautics will hold its Space 2006 conference, "The Value Proposition for Space Security, Discovery, Prosperity," at the San Jose Convention Center in San Jose, California. The

conference will address a wide array of topics, including technical, economic, and policy themes, to provide a forum to discuss “the value proposition for space.” Information about the meeting is available at <http://www.aiaa.org/content.cfm?pageid=1>.

From 12 to 15 October 2006, the Society for the History of Technology annual meeting will be held at the Imperial Palace in Las Vegas, Nevada. Information about the meeting is available at <http://shot.press.jhu.edu/>.

From 2 to 5 November 2006, the History of Science Society will hold its annual meeting in Vancouver, British Columbia. For more information about the meeting, see <http://www.hssonline.org/society/index.html>.

NASA Annual History Review Meeting

From 4 to 6 April 2006, the NASA Annual History Review meeting will be held on the grounds of the U.S. Space and Rocket Center in Huntsville, Alabama. Mike Wright and his colleagues at the George C. Marshall Space Flight Center will be handling local arrangements for the meeting.

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IMAGE IN SPACE HISTORY



Photo of Mars taken by Viking 1's camera 1 on 23 July 1976.

Sand dunes and large rocks are revealed in this panoramic image of Mars. The horizon is approximately 3 kilometers (2 miles) away. The left and right thirds of the picture are the same area that were photographed on July 20 (Sol 0) by camera 2 and provide stereo coverage. The middle third reveals a part of the Martian surface not seen on the July 20th panorama. The late afternoon sun is high in the sky over the left side of the picture. The support struts of the S-band high-gain antenna extend to the top of the picture. The American flags are located on the two Radioisotope Thermoelectric Generator (RTG) windcreens. In the middle third of the picture, the rocky surface is covered by thick deposits of wind-blown material, forming numerous dunes. At the center of the picture, on the horizon are two low hills that may be part of the rim of the distant crater. Two very large rocks are visible in the middle ground; the nearer one is 3 meters (10 feet) in diameter and is 8 meters (25 feet) from the spacecraft. A cloud layer is visible halfway between the horizon and the top of the picture. The metrology boom is located right of center. Behind it, the "White Mesa" is visible, which could be seen on the far left side of the Sol 0 camera 2 panorama. In the nearer ground are numerous rocks, about 10cm (4 inches) across with horseshoe-shaped scour marks on their upwind side and wind tails in their lee. The fine-grained material in the front of them contains small pits formed by impact of material kicked out by the lander's descent rocket engines.

Center: HQ; Center Number: 76-H-624; GRIN DataBase Number: GPN-2000-001699

CONTACT INFORMATION AND CREDITS

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

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

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