NEWS & NOTES

NASA HISTORY DIVISION
OFFICE OF EXTERNAL RELATIONS

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FROM THE CHIEF HISTORIAN

Fifty years ago, the National Aeronautics and Space Administration (NASA) was in its birth throes, and fundamental decisions were being made that profoundly shaped all that was to come. The driving force, of course, was the launch of Sputnik on 4 October 1957, followed by its even weightier successors. In the midst of the Cold War, a country that aspired to global preeminence could not let that challenge pass. Although the United States already had its own satellite plans in place as part of the International Geophysical Year, the Soviet events spurred the Space Age and, in particular, gave urgency to the founding of an American national space agency.

In the wake of the Sputniks, events moved quickly toward the development of NASA, especially considering the weighty issues that had to be resolved. Should there be a new agency or one built on an already-established institution, such as the National Science Foundation (NSF), the Atomic Energy Commission (AEC), or the National Advisory Committee for Aeronautics (NACA)? Or should it be part of a military agency—the Army and Air Force were both keen, based on their missile work. If it was to be a military or civilian agency, then how to divide the tasks peculiar to each function? Should the new agency include aeronautical activities? Should it have the power to implement international agreements? If so, how should those agreements be used as an instrument of foreign policy, and what should the new agency's relationship be with the State Department?

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SPACE IN EUROPE, EUROPE IN SPACE: SYMPOSIUM ON 20TH-CENTURY ASTROCULTURE

By Alexander C. T. Geppert, Harvard University/Freie Universität Berlin

How has the idea of spaceflight developed into a central element of European modernity? Where and what was outer space at which point in time? How was it represented, communicated, imagined, and perceived? And in what way have European conceptions of the cosmos and extraterrestrial life been affected by the continuous exploration of outer space? These were the pivotal questions discussed at "Imagining Outer Space, 1900–2000," the first international conference on the cultural history of outer space in 20th-century Europe, held from 6 through 9 February 2008 at the Center for Interdisciplinary Research (ZiF), an institute of advanced studies that forms part of Bielefeld University in Germany. For four days, almost 70 scholars from more than a dozen countries convened to historicize outer space and to analyze its significance in the European cultural imagination of the 20th century. I organized the symposium, which was generously sponsored by the ZiF and Fritz Thyssen Stiftung.

Representatives of more than 15 different disciplines were present. Speakers included numerous distinguished scholars, in particular Steven J. Dick (NASA), Debbora Battaglia (Mount Holyoke College), Rainer Eisfeld (Universität Osnabrück), Pierre Lagrange (Centre national de la recherche scientifique), Michael J. Neufeld (National Air and Space Museum),

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Space in Europe, Europe in Space: Symposium on 20th-Century Astroculture (continued)

Claudia Schmölders (Humboldt-Universität zu Berlin), KaiUwe Schrogl (European Space Policy Institute, or ESPI), James Schwoch (Northwestern University), and Helmuth Trischler (Deutsches Museum). Also among the participants were many younger scholars, graduate students, national and international media representatives, and delegates of several international organizations including ESPI, the European Space Agency (ESA), and the International Academy of Astronautics (IAA). I commenced the symposium with an introductory lecture on problems and perspectives of European Astrofuturism in the 20th century before giving the floor to the keynote speaker, NASA's Chief Historian, Steven Dick. Entitled "Space, Time and Aliens: The Role of Imagination in Outer Space," Dr. Dick's lecture attracted the largest audience of the entire conference. At the end of the fourth day, Helmuth Trischler, research director of the Deutsches Museum in Munich, concluded the symposium by delivering a general commentary, reviewing the achievements of this collective enterprise and formulating several open-ended questions that may prove to be fertile ground for future inquiry. A number of additional feature presentations rounded off the program. They included Philip Pocock's (Zentrum für Kunst und Medientechnologie) interactive multimedia installation "SpacePlace: Art in the Age of Orbitization," a screening of rare historical films curated by Berlin-based director Jürgen Ast and historian Burghard Ciesla (Universität Potsdam/Universität der Künste Berlin), and several poster presentations, which are on display outside the ZiF's plenary hall.

Between Steve Dick's grand keynote lecture and Helmuth Trischler's comprehensive commentary, altogether 27 papers were presented. Grouped in 10 different panels, they were arranged thematically, starting with theoretical and heuristic issues and concluding with questions of a more empirical and technical character. At the same time, presentations were in chronological order, with contributions covering historical topics ranging from the fin de siècle through the present day. There was, however, a particular emphasis on the two decades between the 1950s and the early 1970s—from the so-called "golden age of space travel," with the launching of Sputnik I, the first artificial satellite, in October 1957, to the last Apollo flight in December 1972. Each panel was designed to bring together scholars from different academic backgrounds and have them enter a transdisciplinary—and, in most cases, also transnational—dialogue. For instance, Panel I, "Theorizing Outer Space," brought together a literary scholar, an anthropologist, a philosopher, and a historian, while Panel X, "Designing Outer Space," saw a museum curator engage in discussion with an art historian and a historian of science.

Unlike NASA's successful "Societal Impact of Spaceflight Conference," held in September 2006 (see Proceedings at *http://history.nasa.gov/sp4801-part1.pdf*),

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From the Chief Historian (continued)

On 25 November 1957, Senator Lyndon B. Johnson began hearings on American space and missile activities in the Preparedness Investigating Subcommittee of the Senate Armed Services Committee. On 6 February 1958, this process led to the establishment of a Senate Special Committee on Space and Aeronautics, with the goal of establishing a space agency and with Senator Johnson as its chairman. On the House side of Congress, the Select Committee on Astronautics and Space Exploration was created on 5 March, chaired by House Majority Leader John W. McCormack.

Meanwhile, in the Executive Branch, President Eisenhower had asked his science adviser, James R. Killian, Jr., to convene the Presidential Science Advisory Committee (PSAC) for deliberations on the subject. By 5 March, Eisenhower had approved a memorandum, dated the same day and signed by Nelson Rockefeller, Chairman of the President's Advisory Committee on Government Organization, on which Killian also served. It proposed a civilian space agency built around the NACA, which by this time spent about half its total effort on space-related projects, including the Vanguard, X-15, and Defense Department missile programs. In the following weeks, legislation was drafted by the Bureau of the Budget, the NACA, and Killian's office. One of those Bureau of the Budget drafters, Willis H. Shapley (son of the famous Harvard astronomer Harlow Shapley), later became a Deputy Associate Administrator of NASA. Another drafter, Paul G. Dembling—general counsel for the NACA during the crucial 1957–58 period and later the NASA general counsel—recalled that it was a high-pressure situation "because other agencies [than the NACA] were seeking the mantle, and we didn't know exactly where we all stood." Dembling, who is still alive and well today, recalls there was no one source for drafting such legislation, and he relied on past decisions by the General Accounting Office. The legislation that emerged called for a new agency rather than a strengthened NACA, responding to the criticism of some that the NACA had become too lethargic to deal with the onrush of events and that a new start was needed.

On 2 April, Eisenhower sent the draft legislation to Congress establishing the "National Aeronautics and Space Agency." At the behest of Eilene Galloway, who worked for the Congressional Research Service and served as a consultant to both Senator Johnson and Congressman McCormack during the drafting of the final National Aeronautics and Space Act, the name was changed to "National Aeronautics and Space Administration." It was her belief that an "Administration" with an "Administrator" would have more power than a mere "agency" with a "director" and that the new institution would need that power to coordinate with many other agencies. Galloway, too, is alive and well today, still offering her reminiscences at age 102.

After congressional hearings during spring 1958, Congress passed the legislation, and President Eisenhower signed the National Aeronautics and Space Act into law on 29 July 1958. Although it had generally been assumed that Hugh Dryden, the head of the NACA, would be appointed Administrator, three weeks later, on 19 August, T. Keith Glennan—the president of Case Institute of Technology since 1947 and a former member of the Atomic Energy Commission—was sworn in at the White House as NASA's first Administrator, with Dryden as his Deputy Administrator. NASA formally opened for business on 1 October 1958.

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From the Chief Historian (continued)

It is instructive to recall the objectives for NASA that emerged in section 102 of the final Space Act:

1) The expansion of human knowledge of phenoena in the atmosphere and space.

2) The improvement of the usefulness, performance, speed, safety, and efficiency of aeronautical and space vehicles.

3) The development and operation of vehicles capable of carrying instruments, equipment, supplies, and living organisms through space.

4) The establishment of long-range studies of the potential benefits to be gained from, the opportunities for, and the problems involved in the utilization of aeronautical and space activities for peaceful and scientific purposes.

5) The preservation of the role of the United States as a leader in aeronautical and space science and technology and in the application thereof to the conduct of peaceful activities within and outside the atmosphere.

6) The making available to agencies directly concerned with national defense of discoveries that have military value or significance, as well as the furnishing by such agencies, to the civilian agency established to direct and control nonmilitary aeronautical and space activities, of information as to discoveries that have value or significance to that agency.

7) Cooperation by the United States with other nations and groups of nations in work done pursuant to this act and in the peaceful application of the results thereof.

8) The most effective utilization of the scientific and engineering resources of the United States, with close cooperation among all interested agencies of the United States in order to avoid unnecessary duplication of effort, facilities, and equipment.

NASA's top management from 1958 to 1960 consisted of T. Keith Glennan, Administrator (center); Hugh L. Dryden, Deputy Administrator (left); and Richard E. Horner, Associate Administrator (right). This photo, dated 1 March 1960 and probably taken at NASA's first Headquarters at the Dolly Madison House, also shows the new seal of NASA on the wall above Glennan.

The Space Act has been amended many times since 1958 (see online reference below for details), but these goals have changed little. In NASA's Authorization Act for 1985, the expansion of human knowledge "of the Earth" was added to goal 1, reflecting increased concern about Earth resources and global climate change. In the Authorization Act for 1989, a ninth goal was added: "The preservation of the United States preeminent position in aeronautics and space through research and technology development related to associated manufacturing processes." Other sections of the Space Act dealt with civilian-military coordination, international cooperation, the demise of the NACA, the transfer of functions from other government agencies, and intellectual property rights.

Beyond the logistical questions in the founding of a new space agency were larger issues not fully grasped at the time. In creating NASA, Pulitzer Prize–winning historian Walter McDougall argued, Congress was creating a technocratic institution, where technocracy is defined as "the institutionalization of technological change for state purposes, that is, the state-funded and -managed R&D explosion of our time." He saw Sputnik as a saltation that sparked this technological revolution. McDougall later revised this point in light of the events of the Space Age. Historian Robert MacGregor has also recently challenged the view of Sputnik as a technological saltation, arguing that technocratic ideas of the relation of science to the state were already well established by this time. In particular, he points to the parallels between the Atomic Energy Commission and NASA and further argues that "NASA's rise in the 1960's as an engine of American international prestige was rooted in atomic diplomacy, and that certain debates in Congress about the new agency were largely approached from within a framework of atomic energy, thereby limiting the range of discourse and influencing the shape of the new agency." Of special importance, MacGregor finds, are the sections of the National Aeronautics and Space Act that were inspired by the Atomic Energy Acts of 1946 and 1954, especially the relation of the Department of Defense to the new agency, the role of international cooperation, and the apportionment of intellectual property.

Issues great and small were involved in the founding of NASA. It may truly be said that NASA has achieved the goals laid out in section 102, sometimes in spectacular fashion, with the possible exception of objective 4, which involves studies of the long-range benefits and problems related to spaceflight. That objective is now being undertaken in the NASA History Division, as witnessed in the recent publication of *Societal Impact of Spaceflight* (see *http://history.nasa.gov/sp4801-part1.pdf*) and in other planned publications. Perhaps no goal is more important for sustaining a robust space program than ensuring that society has a vested interest in the aeronautics and space activities of NASA and the other space agencies that have sprouted up around the world over the last 50 years.

Steve Dick

Further Reading

Eilene Galloway, "Sputnik and the Creation of NASA: A Personal Perspective," in *NASA*: *50 Years of Exploration and Discovery* (Faircount, 2008), pp. 48–49.

Edward S. Goldstein, "Present at the Creation: Paul G. Dembling, Author of NASA's Founding Legislation," in *NASA*: *50 Years of Exploration and Discovery* (Faircount, 2008), pp. 50–51.

Alison Griffith, *The National Aeronautics and Space Act: A Study of the Development of Public Policy* (Washington, DC, 1962).

Cargill Hall, "Origins of U.S. Space Policy: Eisenhower, Open Skies and Freedom of Space," in *Exploring the Unknown*, vol. 1, ed. John M. Logsdon, p. 213 ff.

J. D. Hunley, ed. *The Birth of NASA: The Diary of T. Keith Glennan* (Washington, DC: NASA SP-4105, 1993). Available online at *http://history.nasa.gov/SP-4105/sp4105.htm*. Glennan was NASA's first Administrator.

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From the Chief Historian (continued)

John M. Logsdon, moderator, *Legislative Origins of the National Aeronautics and Space Act of 1958*: *Proceedings of an Oral History Workshop Conducted April 3, 1992* (Washington, DC: Monographs in Aerospace History, no. 8, 1998). Available online at *http://history.nasa.gov/40thann/legislat.pdf*; a larger version of the file with graphics is located at *http://history.nasa.gov/40thann/legorgns.pdf*.

Walter MacDougall, . . . *The Heavens and the Earth: A Political History of the Space Age* (Baltimore: The Johns Hopkins University Press, 1985).

Robert R. MacGregor, "Imagining an Aerospace Agency in the Atomic Age," in *Remembering the Space Age*, ed. Steven J. Dick (NASA History Series, forthcoming).

National Aeronautics and Space Act of 1958, as amended, with legislative history showing changes over time. Available online at *http://history.nasa.gov/spaceact-legishistory.pdf*.

David S. F. Portree, *NASA's Origins and the Dawn of the Space Age* (Washington, DC: Monographs in Aerospace History, no. 10, 1998). Available online at *http://history.nasa.gov/monograph10/*.

Robert L. Rosholt, *An Administrative History of NASA*, *1958–1963* (Washington, DC: NASA SP-4101, 1966).

Space in Europe, Europe in Space: Symposium on 20th-Century Astroculture (continued)

the geographical focus of this symposium was on Europe, in particular Western Europe, yet without neglecting transatlantic references and transnational interdependencies. Despite their different disciplinary provenances, all presentations approached their respective subject matter from the perspective of cultural history or cultural studies, broadly defined. Neither did this conference concentrate on the institutional or technological history of the European space effort, nor was it centered on classical astropolitics or present-day policy analyses. By concentrating on prominent activists and specific sites, contact points between science and fiction, and single historical episodes and various case studies, contributions to the conference rather examined the cultural and societal impact of space exploration and space travel on European culture and society at large. As a conceptual counterpart to the more familiar term "astropolitics," it was suggested to analyze the cultural significance and imaginative repercussions of outer space, space travel, and space exploration under the new label "astroculture."

Thus, presentations covered a broad range of fascinating topics and frequently employed innovative methodologies to exploit largely unknown research territory. A number of papers analyzed the activities of influential "space personae" such as the now deceased science fiction author and longstanding chairman of the British Interplanetary Society, Arthur C. Clarke (presented by Thore Bjørnvig), the space popularizer and occultist Max Valier (Christina Wessely), and the German-born

American rocket engineer Wernher von Braun (Michael J. Neufeld). Others examined the history of launch sites and other Earthly locations important to space exploration, as well as specific sites of exploration, such as the so-called Tunguska event of June 1908 (Claudia Schmölders); the Australian-British-European spaceport Woomera that opened in 1947 (Kerrie Anne Dougherty); UFO sightings in a small village in northern France in the 1950s (James I. Miller, Pierre Lagrange); and underwater habitats, popular in the late 1960s, where aspects of future life in space colonies were to be simulated (Sven Mesinovic). A third group of papers studied changing European conceptions of outer space in different media contexts, for instance, popular francophone comic books of the 1950s such as Hergé's Tintin albums "Objectif lune" and "On a marché sur la lune" of 1953 and 1954 (Guillaume de Syon), space coverage in German newspapers and TV between 1957 and 1987 (Bernd Mütter), the British science fiction series "Space 1999" (Henry Keazor), American *Star Trek* episodes that took up themes of German National Socialism (Werner Suppanz), and the iconography of the famous Pioneer 10 and 11 plaques (William R. Macauley). Although Carl Sagan composed them in the early 1970s to communicate information about humankind to extraterrestrial life-forms in the event of the spacecraft's discovery, more terrestrial factors were at the forefront 30 years later when British artist Damien Hirst designed the calibration target for the European Beagle 2 spacecraft, scheduled to land on Mars on Christmas 2003 but eventually declared lost. Over the course of these three decades, from the early 1970s through 2003, all ideologically motivated claims to space art had been replaced by a provocative denial of metaphysics, in particular far-reaching forms of commodification (Tristan Weddigen).

Without any doubt, the most remarkable features of this conference were its cooperative atmosphere and creative dynamic. Participants discussed the most controversial issues across all disciplinary, national, and generational boundaries with great enthusiasm. Quite organically, some of the conference's initial questions changed trajectory as the panels proceeded. Not all of them proved as productive as foreseen or set the right directions for future research. Yet during this process, other, more pressing questions were raised and productively discussed. As always, this should be taken as what it clearly was: the classic indicator for success of any scholarly enterprise. Hardly ever are problems solved conclusively, once and for all; rather, questions can only be reconfigured, perhaps "better" than before, and once a conference is over, its proceedings may be published for wider critique and discussion. In this particular case, the entire field of research is still much too young—especially from a Western European perspective—to allow for a more systematizing and structuring approach.

With almost 30 contributions and intense discussion following each presentation, it is a sheer impossibility to do justice to all papers and, at the same time, to summarize the ensuing lively debates. Thus, as an alternative to presenting a series of one conference statement after another, the second half of this essay seeks to give a brief review of those themes, issues, and problems discussed in Bielefeld that sparked the greatest amount of interest among participants. A brief program survey can be found at the end of this report, and more detailed information, including concise abstracts and short biographies of all speakers, is available at the conference's Web site: *http://www.geschkult.fu-berlin.de/outerspace*.

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Themes, Issues, and Problems

The symposium pursued a threefold objective. First, by bringing together members of different disciplines and inviting them to enter a dialogue on the opportunities and problems of historicizing outer space, we sought to contribute to the development of a field of research hitherto unexplored. Unfortunately, an equivalent to NASA's History Division or to the Space History Division of the National Air and Space Museum, with their concerted activities and unparalleled research programs, does not exist in Europe. As a direct consequence, space history is a much smaller affair and an even more fragmentary enterprise in Europe. Hence, the conference did not primarily pursue a synthesizing or systematizing goal, but rather an explorative objective.

Moreover, the symposium was based on the assumption that changing images of outer space and conceptions of extraterrestrial cultures must also, in a European context, be read as expressions of historically specific ideas of the beyond and expectations for the future. This is the same discursive complex for which literary scholar De Witt Douglas Kilgore has introduced the term "astrofuturism." Hence, in addition to a general structuring and transdisciplinary stocktaking of a nascent field of research, the conference aimed, second, at identifying a distinctly European version of this discursive formation, so central to 20th-century European modernity. Is space exploration—since Apollo 8 delivered the first images of the entire globe—so crucial to and inextricably intertwined with the process of globalization that the introduction of an additional, specifically European level of analysis would only prove of limited heuristic value?

Third, the conference aimed to explore the relation between science and fiction in this particular field of research. This is a theme long familiar to all space historians, starting with Willy Ley in 1944. According to the standard argument, in October 1957, the "visionary" or "pioneering" era of spaceflight was superseded by "real" spaceflight, and "science fiction" was subsequently replaced by "science fact." However, assuming such a teleological line is naive. To be sure, there is science in fiction, fiction in science, and science fiction, but a rectilinear development from "fiction" to "science" does not exist. "Science fiction" and "science fact" overlap and continue to affect each other; one has never been fully absorbed by the other. Thus, contributors to the conference were anxious to balance carefully both perspectives when analyzing the contexts of the production of literature, whether research or fiction, *and* the sociocultural effects of these "scientific fictions" in various configurations.

Additional characteristics of a field of historical research still *in statu nascendi* became apparent during these four days in Bielefeld. "Astrofuturism" proved indeed a suitable umbrella concept to thematize interactions between representations of outer space and changing conceptions of the future, as well as to analyze their strong, yet all-too-often hidden, connection to religion, transcendental beliefs, and the spiritual beyond. Given the overall state of research at present, it proved a much more challenging task to identify and characterize the spe-

cifically European element within 20th-century astroculture and to draw a clear dividing line between that and American or Russian conceptions of the cosmos. Assuming, however, that these were exclusively discussed among the social elites is simply incorrect and not confirmed by the source material. Quite the contrary: the presence of extraterrestrials in the cultural life of our times has long been undisputed and is anything but an epiphenomenon of postmodernity. Aliens as cultural artifacts have always been subject to sociocultural fluctuations that can at least be traced back to Giovanni Schiaparelli's discovery of "canals" on Mars in the fall of 1877 (discussed by Rainer Eisfeld).

Furthermore, it became clear that fields of historical research usually treated separately, such as the history of extraterrestrial life and science fiction on the one hand and the history of spaceflight, rocketry, and satellite technology on the other, must necessarily be taken together if the aim is to produce a history of nonscientific forms of knowledge (Andreas Daum, Thomas Brandstetter). Visual aspects play a central role in the imagination of outer space, in terms of both supply and demand. Hardly a single presentation could do without a careful analysis of the enormously rich visual material available, be it drawings, photographs, and films or postcards, comic books, and video clips (David Valentine). Also from a historiographical perspective, the conference offered abundant points of contact to other subbranches of historical research going far beyond the history of science and technology (Paul Ceruzzi). These included not only the history of philosophy (Benjamin Lazier, Gonzalo Munevar), the history of literature (Angela Schwarz), and military history (Bernd Weisbrod), but also the history of consumption (Monica Rüthers), of media and communication (Peter Becker), and of colonialism (Debbora Battaglia).

For a long time after 1945, Europe's active contribution to the physical exploration of outer space was, at best, secondary. Nonetheless, as the fascinating contributions to this conference testified in a variety of ways, the sociocultural impact of outer space has been tremendous, and it remains so. Quite obviously, it will require an enormous amount of effort until this "European paradox" of comprehensive space enthusiasm concomitant with a decades-long abstinence from actual spaceflight is adequately explained and the cultural history of European outer space properly integrated into mainstream historiography. It is also obvious that such a challenge can only be met by choosing a combined transdisciplinary and transnational approach. However, in what way an integration could be accomplished, and to what extent this would be at all desirable, are two of the few questions that remained undiscussed in Bielefeld.

A book based on the contributions to this conference, tentatively entitled *Imagining Outer Space: European Astroculture in the Twentieth Century*, is currently in preparation. A detailed program, abstracts of all presentations, and biographical information on all speakers can be found at *http://www.geschkult.fu-berlin.de/outerspace*. A video of Steve Dick's complete keynote lecture can be viewed at *http://www.archive.org/details/ImaginingOuterSpace1900-2000ZifBielefeldConferenceKeynotes6.2.08-*.

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PROGRAM

Wednesday, 6 February 2008

INTRODUCTION

Alexander C. T. Geppert (Harvard University/Freie Universität Berlin): "European Astrofuturism, Cosmic Provincialism: Historical Problems and Historiographical Perspectives"

Steven J. Dick (NASA): "Space, Time and Aliens: The Role of Imagination in Outer Space" (keynote lecture)

Philip Pocock (ZKM): "SpacePlace: Art in the Age of Orbitization" (feature presentation I)

Thursday, 7 February 2008

PANEL I: THEORIZING OUTER SPACE

Chair: De Witt Douglas Kilgore (Indiana University)

Debbora Battaglia (Mount Holyoke College): "Galaxies of E.T. Discourse: An Anthropologist's First Contact with the Science of 'Weird Life' "

Thomas Brandstetter (Universität Wien): "Imagining Inorganic Life: Crystalline Aliens in Science and Fiction"

Benjamin Lazier (Stanford Humanities Center): "The Globalization of the World-Picture: Towards a History of Earth and Artifact in Twentieth-Century Thought"

PANEL II: PERSONALIZING OUTER SPACE

Chair: Bernd Weisbrod (Georg-August-Universität Göttingen)

Christina Wessely (Universität Wien): "Cosmic Spectacular: Rocketry, Weltanschauung and the Quest for Cosmic Ice in Weimar, Germany"

Thore Bjørnvig (University of Copenhagen): "Transcendence of Gravity: Arthur C. Clarke and the Apocalyptic of Weightlessness"

PANEL III: LOCALIZING OUTER SPACE

Chair: Andreas W. Daum (State University of New York at Buffalo)

Kerrie Anne Dougherty (Powerhouse Museum, Sydney): "Spaceport Woomera"

Sven Mesinovic (European University Institute, Florence): "Inner Space and Outer Space: Similarities, Differences and Connections"

PANEL IV: SCREENING OUTER SPACE

Chair: Peter Becker (Johannes-Kepler-Universität Linz)

Burghard Ciesla (Universität Potsdam/Universität der Künste Berlin): "Outer Space, Inner Fear: Cold War SF Films in East and West"

Henry Keazor (Johann-Wolfgang-Goethe-Universität Frankfurt am Main): "A Stumble in the Dark: Gerry Anderson's 'Space 1999' "

Werner Suppanz (Karl-Franzens-Universität Graz): "Nazis in Space: Distant Worlds as Projection Screen of Cultural Memory"

Jürgen Ast (Berlin)/Burghard Ciesla (Universität Potsdam/Universität der Künste Berlin): "Screening of Historical Films" (feature presentation II)

Friday, 8 February 2008

PANEL V: FICTIONALIZING OUTER SPACE

Chair: Angela Schwarz (Universität Siegen)

Claudia Schmölders (Humboldt-Universität zu Berlin): "Unwriting Heaven: Tunguska Region, June 30, 1908"

Steffen Krämer (Ludwig-Maximilians-Universität München): "Ancient Heroes and Early Christian Ascetics: Archetypes of Modern Science Fiction"

Rainer Eisfeld (Universität Osnabrück): "Projecting Landscapes of the Human Mind on Another World: Changing Features of an Imaginary Mars"

PANEL VI: VISIONING OUTER SPACE

Chair: Alexander C. T. Geppert (Harvard University/Freie Universität Berlin)

Pierre Lagrange (National Center for Scientific Research [CNRS] Paris): "A 'Symmetrical' Explanation for Flying Saucers"

James I. Miller (Davidson College): "Encountering Aliens in the French Countryside: UFOs and the Fabrication of a New World in Quarouble, France, 1954"

PANEL VII: POLITICIZING OUTER SPACE

Chair: Kai-Uwe Schrogl (European Space Policy Institute)

Monica Rüthers (Universität Basel): "Outer Space, Children's Material Culture and Soviet Imagery After Sputnik"

Michael J. Neufeld (National Air and Space Museum): " 'Smash the Myth of the Fascist Rocket Baron': East German Attacks on Wernher von Braun in the 1960s"

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Space in Europe, Europe in Space: Symposium on 20th-Century Astroculture (continued)

PANEL VIII: COMMUNICATING OUTER SPACE

Chair: Ralf Bülow (Berlin)

Guillaume de Syon (Albright College): "Between the Bubble and the Moon: Visions of Space Travel in Francophone Comic Strips"

Bernd Mütter (Universität Bielefeld): "Per Media Ad Astra? Outer Space in West Germany's Media 1957–1987"

Saturday, 9 February 2008

PANEL IX: AUTOMATIZING OUTER SPACE

Chair: Paul Ceruzzi (National Air and Space Museum)

James Schwoch (Northwestern University): " 'Short, Nasty, and Brutish': The Curious Life of Telstar, 10 July 1962–21 February 1963"

Gonzalo Munevar (Lawrence Technological University): "Self-Reproducing Automata and the Impossibility of SETI"

PANEL X: DESIGNING OUTER SPACE

Chair: Peter Davidson (National Museums Scotland)

William R. Macauley (University of Manchester): "Inscribing Scientific Knowledge: Interstellar Communication, Universal Laws and Contact with Cultures of the Imagination"

Tristan Weddigen (Universität Bern): "Alien Spotting: Damien Hirst's Beagle 2 Mars Lander 'Calibration Target' and the Exploitation of Outer Space"

CONCLUSION

Chair: Steven J. Dick (NASA)

Helmuth Trischler (Deutsches Museum): General Commentary

News from Headquarters and the Centers

Historical Reference Collection

Jane Odom continues to evaluate and acquire new material for the Historical Reference Collection. She appraises material and directs the subsequent processing of collections. Jane continues to answer reference requests and facilitate the entry of international visitors into the building. She and other members of the archival staff have been working with the information technology (IT) staff on a modification to the database that will allow several thousand PDFs in the database to be published to an external Web site.

Colin Fries and John Hargenrader continue to scan the speeches of the Deputy Administrators, adding them to the History Division's database. Colin, John, and Liz Suckow all share reference duties, answering inquiries received by e-mail, assisting walk-in researchers, and assisting with Freedom of Information Act (FOIA) requests. Liz and Colin are currently working together on reprocessing a large collection of human spaceflight (Gemini through Shuttle) reports.

Individually, Liz completed the appraisal of several dozen boxes of Viking Program History files that had been recalled from the Federal Records Center. She made copies of historically significant items from those boxes and added them to the Historical Reference Collection. She is now doing the same with nearly 20 boxes of material on the Electronics Research Center, a former NASA installation. Liz is also carrying out preservation photocopying of our earliest astronaut biographical files and rehousing the originals in archival-quality folders. Last quarter, she completed the processing of a small collection of NACA/NASA Equal Employment Opportunity (EEO) files dated 1923–92.

Colin continues to maintain and improve the History Division Web site. He recently finished processing a small collection from the Education Division, 1961–94, containing information on the Shuttle naming program, science fairs, and other material. He helped fact-check a 50th-anniversary publication and an article written for the forthcoming Smithsonian Folklife Festival, which will highlight NASA's 50th anniversary. Also, Colin recently completed an "Introduction to HTML" course offered at NASA Headquarters.

John is adding and captioning new images for the GReat Images in NASA (GRIN) photo database. He is currently processing a collection of source files collected by Dill Hunley for his recently published book on propulsion technology development for U.S. space-launch vehicles. John also continues to perform preservation photocopying as he sees items needing attention.

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News from Headquarters and the Centers (continued)

Ames Research Center (ARC)

The NASA Ames History Office continued to expand its efforts at curating historical artifacts from around the Center. Notable accessions include some early virtual-reality visualization devices from Steve Ellis and materials from Earl Keener on visualization methods used in wind tunnels.

Archivist April Gage drafted a basic data dictionary for the History Office artifacts database in order to standardize content entry and improve retrieval. The document, which was developed using rules in the Society of American Archivists approved standard, *Describing Archives: A Content Standard (DACS)*, provides guidelines for entering artifact metadata. The dictionary identifies all variable and controlled fields, defines the possible input values for those fields, and includes sample entries. If anyone is interested in reviewing this document and providing feedback, please contact April at *April.D.Gage@nasa.gov*.

Intern Allison Tara Sundaram cataloged 28 paintings depicting Pioneer spacecraft and space settlements. She measured, cleaned, and photographed each painting, then organized them for storage before generating a caption and a database record. The space settlement paintings, by Rick Guidice, were commissioned to illustrate two summer studies assessing the economic and technological requirements for settling space. The Pioneer paintings, by Paul Hudson and Rick Guidice, depict trajectories and planetary approaches by Pioneers 10, 11, and Venus, as well as the landscape of the planet Venus. The Pioneer artwork helps the viewer imagine what the spacecraft might look like while hard at work in outer space, far away from other cameras or human observers.

The space settlement paintings have been in great demand lately as museums organize exhibits about past conceptions of the human-built environment. Four of the paintings were on exhibit during a recent NASA Ames conference on "Virtual Worlds and Immersive Environments." The paintings provided historical insight into what was then considered to be the next step in our exploration of space, and they remain important as NASA prepares to return to the Moon and travel to Mars.

Anniversary observations continue to provide opportunities for engagement in history. The NASA Advanced Supercomputing (NAS) Division celebrated its 25th anniversary on 21 April with a series of lectures by the founders of computational fluid dynamics and supercomputing in NASA. The Stanford Aeronautics and Astronautics Department, cofounded by NACA engineer Walter Vincenti, celebrated its 50th anniversary from 8 to 10 May. NASA Ames staff also were asked to nominate a new class of inductees into the NASA Ames Hall of Fame.

Dryden Flight Research Center (DFRC)

Christian Gelzer has begun plans for a revision of Dryden's visitors' center. He is hoping to include several interactive displays, something new for the Center. He has submitted an article, part of a larger work he has under way, to the journal *History and Technology*. Of late, he has been advising a former engineer, whose years at the Center began in 1963, on crafting a memoir. He also has agreed to compile an oral

history of the Center's Flight Loads Laboratory and write a short monograph on its history. Finally, he continues to work on the truck fairing monograph in between time devoted to managerial responsibilities for the contractor that employs him.

Curtis Peebles's *Road to Mach 10: Lessons Learned from the X-43A Flight Research Program* has gone to press and should soon be released. It includes a DVD with videos of the flights, program reports, flight cards, and documents relating to that program. Published by the American Institute of Aeronautics and Astronautics (AIAA), the book will be available directly from that organization at a price of $39.95.

Curtis has also begun work on a complete history of the X-43 scramjet program; it devotes considerable time to the work done at Langley Research Center, rather than just the flight portion of the project.

Peter Merlin has been working as technical expert and historical adviser on a "lessons learned" DVD project in conjunction with Dryden's safety offices and Dryden TV. The latter will put the DVD together while Pete collects written documents, conducts interviews, crafts a script, and helps select video. The project is patterned on Dryden's *X-31 Lessons Learned* DVD, which was well received within the Agency. In fact, that DVD was shown to some people outside NASA, which led to requests for copies from the aerospace industry.

Pete and copresenter Dr. Gregg A. Bendrick (DFRC Flight Surgeon) delivered "Possible Vertigo: Astronaut Michael J. Adams and the X-15 Mishap of November 15, 1967" at the 1st Annual Aviation History Symposium, Antelope Valley College, Lancaster, California, an event sponsored by the local AIAA chapter.

Pete has also been coordinating a display for the Dryden visitors' center entitled "From Space Race to Space Cooperation" as part of our celebration of the Agency's 50th anniversary. The display incorporates documents and artifacts from a half-century of U.S.-Soviet space exploration, first as rivals and then as partners.

We expect that *From Archangel to Senior Crown: Design and Development of the Blackbird*, Pete's most recent book, will be released by the AIAA sometime in the next two months. It is a historical case study and lessons-learned analysis of Lockheed's A-12/YF-12/SR-71 family of aircraft (including NASA's use of the airplanes as flying laboratories). Copies of this book will be available from that organization directly at a price of $39.95.

Betty Love has been cataloging material from Shuttle flights, and when that is done, she will focus her attention on records of earlier retirees whose collections have not been sorted. She continues to be an invaluable resource to anyone writing history about flight research in this area, as shown by the acknowledgments she receives in the latest books by Dennis Jenkins and Robert Kempel on the X-15 and X-1, respectively.

Glenn Research Center (GRC)

Two new publications about the historic Altitude Wind Tunnel (AWT) are in their final development stages. An interactive CD-ROM and a monograph, both by archivist Bob Arrighi (RSIS), are the culmination of a multiyear project to

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document the facility before its demolition this year. The AWT was the first wind tunnel in the United States, and possibly the world, capable of operating full-scale aircraft engines in conditions that replicated those actually encountered by aircraft during flight. The facility was later used to simulate the conditions spacecraft encountered in space. It had played a significant role in the progression of the nation's aerospace programs, from the World War II reciprocating engine, to the first turbojet models, to more advanced jets of the 1950s, through Project Mercury, the Apollo Program, and the Centaur missions.

The archive's move to its new home is quickly approaching. Construction on the new space that will house Library, Records Management, and Archives/History operations is scheduled to be completed by early summer. The processed archival collection will now reside in a dedicated area within the library. Also, we will now have a separate, dedicated area for the staging and processing of acquisitions before they are brought into the reference area. We are looking forward to the new opportunities this move will bring and the positive impact it will have on our ability to assist researchers.

Jet Propulsion Laboratory (JPL)

January 2008 marked the 50th anniversary of the first American satellite launch, Explorer 1. JPL celebrated in a number of ways, including the development of some commemorative audiovisual materials and publications. JPL historian Erik Conway prepared an article for the fall 2007 issue of the California Institute of Technology's (Caltech) alumni magazine, *Engineering and Science*. The article is also available online via the magazine's Web site. Frank O'Donnell prepared a beautiful paperback volume on the event that is also available on JPL's Explorer Web site as a full-color Acrobat file. JPL's Executive Director for Communications, Blaine Baggett, produced a documentary on Explorer that premiered at Caltech's Beckman auditorium on 24 January to a full house. There were screenings for Lab personnel at JPL and for the public at Pasadena City College and the Griffith Observatory. It also aired several times on Los Angeles public television station KCET and the Discovery HD cable channel.

JPL also had on-Lab events featuring the Explorer veterans. A private lunch for them, followed by tours of JPL and a public lunch for the entire JPL staff, allowed the retirees to see some of the Lab's current ventures and for JPL staff to meet and talk with the retirees. JPL Chief Scientist Dan McCleese hosted an anniversary dinner for space scientists on 31 January at Caltech's Athenaeum. On the evening of 1 February, JPL Director Charles Elachi hosted an anniversary dinner for the Explorer veterans, again at the Athenaeum.

JPL's Education Office also organized an educators' conference on Explorer 1 for high school teachers. This was held in JPL's Von Karman auditorium on the weekend of 26–27 January. Erik Conway invited Zuoyue Wang from California State Polytechnic University, Pomona, and Craig McConnell of California State University at Fullerton to help present the history of rocketry and space science through the early 1960s. Their aid was much appreciated!

One of the Explorer veterans, Henry Richter, helped the JPL Library and Archives branch identify key documents from the era. Charlene Nichols and Julie Cooper also assembled an exhibit for the library whose centerpiece is a "Project Deal" organization chart with photographs of the veterans attached. This, along with the documentary, has drawn the most positive comment of all the anniversary products.

Erik Conway also continues to make progress on his Mars book. He has done three oral histories, including one with former Associate Administrator for Space Science Wesley Huntress, and completed a chapter on the definition phase of the Mars 2001 missions. He is currently drafting a chapter on the flights of the two doomed Mars 1998 missions and hopes to complete it in April.

JPL will be launching a new climate science portal Web site in conjunction with the launch of the Orbiting Carbon Observatory later this spring. Erik contributed a short essay on NASA's historical role in climate science that is a summary of the paper he presented last November at the annual History of Science Society meeting: "Planetary Science and Global Warming: or, How NASA Became the Dominant Funder of Climate Science." Erik has two new climate-science-related publications out as well: Naomi Oreskes, Erik M. Conway, and Matthew Shindell, "From Chicken Little to Dr. Pangloss: William Nierenberg, Global Warming, and the Social Deconstruction of Scientific Knowledge," *Historical Studies in the Natural Sciences* 38, no. 1: 113–156; Oreskes and Conway, "Challenging Knowledge: How Climate Science Became a Victim of the Cold War," in *Agnotology: The Making and Unmaking of Ignorance*, ed. Robert N. Proctor and Londa Schiebinger (Palo Alto: Stanford University Press, 2008), pp. 55–89.

Erik also finished reviewing the copyedited manuscript of his *History of Atmospheric Science at NASA* and shipped it back to the editor. Bob Brugger at the Johns Hopkins University Press promises that the book will be out this fall.

Marshall Space Flight Center (MSFC)

Tracy McMahan is working as a historian/writer embedded within the Ares Projects Office at Marshall Space Flight Center. She is part of an Ares Communications Team at Marshall focused on outreach, education, and technical communication. McMahan documents the history of the Ares program as it unfolds. For example, she recently traveled with a NASA television crew to Stennis Space Center to document work on the A-1 test stand for J-2X powerpack testing. There she also interviewed Stennis engineers about the upcoming J-2X testing and the construction of the A-3 test stand, a new stand being built for altitude testing of the Ares upper stage engine. Thus far, she has completed 14 2- to 4-hour interviews, including interviews with all the Ares element lead managers. Other Ares historical products will include a chronology and an associated documents collection that will be used to archive project documents, white papers, technical papers, briefing charts, memos, publications, and key policy documents. Prior to joining the Ares communications team led by Bob Armstrong in the Ares Project Office at Marshall, McMahan assembled a "lunar library" consisting

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News from Headquarters and the Centers (continued)

of hundreds of Apollo/Saturn-era documents, including many that have served as useful resources for the current generation of engineers working on Ares. McMahan coordinates her work with Marshall historian Mike Wright. She has also consulted with historians working on the Johnson Space Center Oral History Project.

Stennis Space Center (SSC)

The Stennis Space Center History Office welcomes Daphne Alford! Daphne has supported the Office of External Affairs and Education at NASA John C. Stennis Space Center in Mississippi since November 2006. She began as a professional writer in Media Services and now serves as an administrative professional in the History Office. She is employed by the Huntsville, Alabama–based Erica Lane Enterprises Inc., a subcontractor to Jacobs FOSC Group.

Daphne is responsible for archiving historical documents, responding to history-related requests, and maintaining the daily operations of the History Office under the direction of the NASA Office of External Affairs and Education.

As an established writer, Daphne has experience in communications including print journalism and public relations in the economic development, health care, and education fields. She has received numerous awards and community recognitions in communications.

Daphne is a past board member of the Pine Belt chapter of the Public Relations Association of Mississippi (2002), member of the Mississippi Economic Council (2000), member of the College Public Relations Association of Mississippi (2006), and member of the Council for Advancement and Support of Education (2006).

She is a graduate of William Carey University in Hattiesburg, Mississippi, where she earned a bachelor of science degree in business administration.

Forthcoming NASA History Publications

"Read You Loud and Clear!" A History of NASA's Spaceflight Tracking and Data Network (SP-2007-4232), by Sunny Tsiao. At the height of the space race, 6,000 men and women operated NASA's Spaceflight Tracking and Data Network (STDN) at some two dozen locations across five continents. This network, known as STDN, ironically began its operation by tracking Sputnik I, the world's first artificial satellite, which was launched into space by the former Soviet Union. Over the next 40 years, the network was destined to play a crucial role on every near-Earth space mission that NASA flew. Whether it was receiving the first television images from space, tracking Apollo astronauts to the Moon and back, or acquiring data for Earth science, STDN was that intricate network behind the scenes making the missions possible. *Read You Loud and Clear!* is a historical

account of STDN, starting with its formation in the late 1950s and following its history to what it is today, in the first decade of the 21st century. It traces the roots of the tracking network from its beginnings at the White Sands Missile Range in New Mexico to the Tracking and Data Relay Satellite System (TDRSS) space-based constellation of today. The story spans the early days of satellite tracking using the Minitrack Network, through the expansion of the Satellite Tracking And Data Acquisition Network (STADAN) and the Manned Space Flight Network (MSFN), and, finally, to the space and ground networks of today.

Other New Aerospace History Publications

Compiled by Chris Gamble

Rockets, Reactors, and Computers Define the Twentieth Century, by Charles L. Bradshaw (Franklin, TN: Providence House Publishers, November 2007). Space exploration, nuclear power, and computers are amongst the most world-altering developments of the mid-20th century; in this memoir, mathematician Charles L. Bradshaw, who is involved in all of those developments, gives a detailed account of these momentous changes. Successfully mixing anecdotal and technical information, he recounts the commission to beat the Soviets to the Moon, harness nuclear power, and develop what we now understand to be the modern computer. Educating and enthralling, Bradshaw not only engages the reader, but also explains the mathematics and science behind early rocket guidance systems, nuclear reactors, and pioneering computer programs.

Exploring the Moon: The Apollo Expeditions, 2nd edition, by David M. Harland (Springer-Praxis, January 2008). Highlighted as a "commemorative edition" on the cover, this second edition has a new foreword by one of the original astronauts, contains a short extra section at the end previewing the prospect of a renewal of human exploration of the Moon, and includes new extra-high-quality graphics that are only now available, as well as 32 pages of color illustrations. David Harland opens with a review of the robotic probes, namely the Rangers, which returned television images before crashing into the Moon; the Surveyors, which "soft-landed" in order to investigate the nature of the surface; and the Lunar Orbiters, which mapped prospective Apollo landing sites. He then outlines the historic landing by Apollo 11 in terms of what was discovered and describes how, over the next several missions, the program was progressively geared up to enable the final three missions each to spend three days on comprehensive geological investigations. He concludes with a review of the robotic spacecraft that made remote-sensing observations of the Moon.

The International Atlas of Lunar Exploration, by Philip J. Stooke (Cambridge: Cambridge University Press, January 2008). Bringing together a wealth of information from many sources, including some material never before published, this atlas is a comprehensive reference book on lunar exploration. It tells the story of every spacecraft mission to the Moon since the dawn of the Space Age, illustrating each

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Other New Aerospace History Publications (continued)

account with a unique combination of maps and annotated photographs. Many of the illustrations were created especially for this atlas, including panoramic photographs from every lunar mission. The missions are listed in chronological order, providing readers with an easy-to-follow history of lunar missions. Special attention has been given to describing the processes involved in choosing landing sites for Apollo and its precursors. The atlas also includes missions that were planned but never flown; finally, it looks ahead to future missions as the world's space agencies prepare for a new phase of lunar exploration.

Tourists in Space: A Practical Guide, by Erik Seedhouse (Praxis, February 2008). Recent surveys have provided new and updated information into public insights of the nascent space tourism industry. Erik Seedhouse uniquely explores, in detail, the cutting-edge technologies, spacecraft capabilities, launch vehicles, and training that will define this commercial enterprise. Seedhouse also provides a manual for future suborbital and orbital private space explorers. This overview of the space tourism market is based upon choices the spaceflight participant must make, such as choice of agency, mode, and spaceport. A detailed explanation is given of the medical requirements for spaceflight participants, with special reference to potential waiver criteria. Over half of the book is a comprehensive astronaut training/instructional manual that addresses each of the 15 subjects required for suborbital and orbital flight. A DVD with instructional lectures in the form of PowerPoint slides is included.

An Introduction to Space Weather, by Mark B. Moldwin (Cambridge: Cambridge University Press, February 2008). Space weather is an emerging field of space science focused on understanding societal and technological impacts of the solar-terrestrial relationship. The Sun, which has tremendous influence on Earth's space environment, releases vast amounts of energy in the form of electromagnetic and particle radiation that can damage or destroy satellite, navigation, communication, and power distribution systems. This textbook introduces the relationship between the Sun and Earth and shows how that relationship impacts our technological society. One of the first undergraduate textbooks on space weather aimed at non–science majors, it uses the practical aspects of space weather to introduce space physics and give students an understanding of the Sun-Earth relationship. Moldwin defines important terms throughout the text. Key concepts, supplements, and review questions appear at the end of each chapter to help students understand the materials covered.

The MESSENGER Mission to Mercury, edited by Deborah Domingue and C. T. Russell (Springer, February 2008; reprinted from *Space Science Reviews* vol. 131, nos. 1–4, 2007). NASA's MErcury Surface, Space ENvironment, GEochemistry, and Ranging (MESSENGER) mission, launched on 3 August 2004, is the seventh mission in the Discovery series. MESSENGER encounters the planet Mercury four times, culminating with an insertion into orbit on 18 March 2011. It carries a comprehensive package of geophysical, geological, geochemical, and space environment experiments, beginning with Mariner 10, to complete the complex investigations of this innermost planet

of the solar system. The articles in this book, written by the experts in each area of the MESSENGER mission, describe the mission, spacecraft, scientific objectives, and payload. The book is of interest to all potential users of the data returned by the MESSENGER mission, to those studying the nature of the planet Mercury, and to all those interested in the design and implementation of planetary exploration missions.

Spacecraft Structures, by Jacob Job Wijker (Springer, February 2008). This book provides insight into the design, construction, and analysis aspects of spacecraft. "Spacecraft" includes both satellites and launch vehicles. However, the book's emphasis is on the construction of spacecraft rather than that of launch vehicles.

Mars: An Introduction to Its Interior, Surface and Atmosphere, by Nadine G. Barlow (Cambridge: Cambridge University Press, February 2008). This textbook covers humanity's current understanding of the planet's formation, geology, atmosphere, interior, surface properties, and potential for harboring life. This interdisciplinary textbook encompasses the fields of geology, chemistry, atmospheric sciences, geophysics, and astronomy. Each chapter introduces the necessary background information to help the nonspecialist understand the topics explored. The book includes results from missions through 2006, including the latest insights from Mars Express and the Mars Exploration Rovers.

Satellite Communication Systems, Part 1: Theory, Technology & Applications, by Marcin Swiston (Goodyear, AZ: Exposure Publishing, February 2008). This research covers the emerging technology of satellite and Global Positioning System (GPS) communications. It gives a view of how this technology is adding a new dimension to daily activities. Its applications range from a defending a country to locating a local store in any area. GPS is the only fully functional satellite navigation system. A constellation of more than two dozen GPS satellites broadcasts precise timing signals by radio, allowing any GPS receiver (abbreviated to GPSr) to determine its location (longitude, latitude, and altitude) accurately in any weather, day or night, anywhere on Earth. GPS has become a vital global utility, indispensable for modern navigation by land, sea, and air around the world, as well as an important tool for mapmaking and land surveying. GPS also provides an extremely precise time reference, required for telecommunications and some scientific research, including the study of earthquakes. GPS receivers can gauge altitude and speed with a very high degree of accuracy.

NASA: The Complete Illustrated History, by Michael H. Gorn (Merrell, March 2008; revised and updated edition). This fascinating book—now updated and available in paperback to mark the 50th anniversary of NASA in 2008—tells the remarkable history of America's unrivaled contribution to the exploration of space from the early 20th century to the present. Award-winning historian Michael H. Gorn covers the spectrum of U.S. space missions, including those of projects Mercury, Gemini, and Apollo, and the development of the Space Shuttle. He brings the story up to date by explaining the functions of NASA's two windows in space: the Hubble Space Telescope and the International Space Station. He reveals the personalities

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Other New Aerospace History Publications (continued)

involved—the personal ambitions and temperaments of astronauts, scientists and engineers, as well as the influence of America's Presidents on the U.S. space program—as much as the technological advances that have made space exploration possible. Authoritatively and engagingly written, the book is profusely illustrated throughout with 500 stunning photographs.

Beyond: Visions of the Interplanetary Probes, by Michael Benson (Abrams, March 2008; paperback edition). To create Beyond, Michael Benson spent years compiling and digitally processing 295 of the greatest photographs taken by the amazing spacecraft that have been exploring the solar system for almost half a century. The images, many revealing iconic landmarks, are of a quality to rival the greatest landscape photography on Earth.

Road to Mach 10: Lessons Learned from the X-43a Flight Research Program, by Curtis Peebles (AIAA, March 2008). This is the first full-length history of the X-43 project, written by the project historian at Dryden Flight Research Center. The project achieved the first in-flight testing of a scramjet engine, at speeds of nearly Mach 7 and Mach 10. Based on his exclusive access to historical data from the project, Peebles illustrates—with real-world examples—how groundbreaking technology unfolds. It details the development of the scramjet over the last half-century, providing the reader with an understanding of how external factors influence a new technology.

NASA Space Science Vision Missions, by Marc S. Allen (AIAA, March 2008). In order to extend analyses of the scientific objectives, system design, and operations of potential future space science missions and to identify precursor technology requirements, NASA has funded studies for a variety of advanced missions—the Space Science Vision Missions. The investigator teams have completed their formal final reports for these studies. The teams were invited to develop shorter, summary versions of these final Vision Mission reports suitable for a broader audience. This book, published in partnership with NASA, is the culmination of that effort. Each of the reports sketches out a revolutionary mission concept, providing information on its science rationale, architecture, implementation approach, technology challenges, and deployment and operations. A final chapter describes an analysis of directions for future technology development inspired by this portfolio of mission concepts.

Advanced Propulsion Systems and Technologies: Today to 2020, by Claudio Bruno (AIAA, March 2008). Commissioned by the European Space Agency, this book details specific propulsion technologies as envisioned by 2020. Each technology has been considered in terms of concept, associated key technologies, development status, and proposed roadmaps. The book leads the reader through all the steps that propulsion will likely take between now and the 2020s in a clear, concise, and detailed way, including market and feasibility perspectives when applicable.

Space Warfare and Defense: A Historical Encyclopedia and Research Guide, by Albert Chapman (ABC-CLIO, March 2008). The book provides a comprehensive coverage of the development of space as a possible arena for warfare, exploring the military uses of space—past, present, and future—and specific details of actual space weapons systems. The encyclopedia spans the breadth of U.S. military space policy; comparable programs in the Soviet Union, China, and the European Union; and the full array of international agreements designed to regulate the military uses of space. In addition, the encyclopedia includes an extensive reference guide (nearly 40 percent of the book) directing readers to the essential literature on space weapons and defense systems produced by the United States, other governments, research institutions, and additional sources. At a time when space is becoming an increasingly important place of military competition and potential conflict, *Space Warfare and Defense* dispels the myths and examines the realities of what may become humanity's ultimate battlefield.

To a Distant Day: The Rocket Pioneers, by Chris Gainor (Lincoln: University of Nebraska Press, April 2008). The book introduces the reader to pioneers such as Konstantin Tsiolkovsky, Robert Goddard, and Hermann Oberth, who pointed the way to the cosmos and created the earliest wave of international enthusiasm for space exploration. It shows us German engineer Wernher von Braun creating the V-2, the first large rocket, which opened the door to space but failed utterly as the "wonder weapon" it was meant to be. From there Gainor follows the space race to the Soviet Union and the United States and gives us a close look at the competitive hysteria that led to Sputnik, satellites, space probes, and—finally—human flight into space in 1961. As much a story of cultural ambition and personal destiny as of scientific progress and technological history, To a Distant Day offers a complete and thoroughly compelling account of humanity's determined efforts—sometimes poignant, sometimes amazing, sometimes mad—to leave Earth behind.

Exoplanets: Detection, Formation, Properties, Habitability, edited by John Mason (Springer, April 2008). This multi-author volume will be an invaluable introduction and reference to all key aspects in the field of exoplanet research. The reviews cover detection methods and properties of known exoplanets; the detection of exoplanets by gravitational microlensing; the formation and evolution of terrestrial planets in protoplanetary and debris disks; the brown dwarf–exoplanet connection; the formation, migration mechanisms, and properties of hot Jupiter-like planets; the dynamics of multiple exoplanet systems; Doppler exoplanet surveys; the search for exoplanets in the stellar graveyard; the formation and habitability of exoplanets in multiple star systems; exoplanet habitats and their possibilities for sustaining life; and the Moons of exoplanets as possible habitats for life.

New Online Resources

NASA History Web Sites

Four series from the NASA Headquarters Historical Reference Collection have been digitized and made available in a new online database for use by researchers. The database is now available at *https://mira.hq.nasa.gov/history/*; it also may be accessed through the History Division Web site. Included are PDFs of press kits, press releases, mission transcripts, and Administrators' speeches. Researchers may use either the Basic Search or Advanced Search to access these. The Headquarters History Division staff has digitized all press kits, press releases, mission transcripts, and Administrators' speeches that were available to them in the Historical Reference Collection. Links are provided to other sources where similar and/or additional information may be found.

Other New Electronic Resources

The Society for History in the Federal Government (SHFG) has a new Web site, thanks to the efforts of SHFG's Webmaster, Jennifer Levasseur. If you have not yet had a chance to check it out, visit *http://shfg.org/*. This is still a work in progress, so if you have any information you believe should be added or you find any mistakes, please contact Jennifer through the Webmaster link at the bottom left-hand corner of the Web site.

Interested in learning more about the history of the Moon? The Lunar and Planetary Institute has created a Web site dedicated to lunar science and exploration. The Web site has links covering a wide swath of spaceflight history, from Apollo-era science to spacecraft, including the lunar rover, Lunar Module, and Command and Service Module. Visit *http://www.lpi.usra.edu/lunar/* to learn more.

Apollo Talks is an interesting site that features podcast versions of oral histories with "those who went to the Moon and those who sent them." It is located at *http://apollotalks.com/* online.

The publisher of *Quest* magazine has a new history Web site (*http://history.spacebusiness.com*) that offers additional interviews and other materials that cannot fit into the pages of *Quest*. The first special feature added was on Sputnik and is located at *http://history.spacebusiness.com/sputnik/*.

Quarterly Series: NASA's National Historic Landmarks

The National Park Service (NPS) manages the National Register of Historic Places (NRHP), the 80,000 buildings, districts, structures, and objects that are significant to America's history. The NRHP contains approximately 2,900 National Historic Landmarks (NHLs). While NASA's historic accomplishments in aeronautical research, science, and space exploration are well documented, less is known about the buildings and structures that supported and enabled these accomplishments. This series provides an overview of NASA's 20 NHLs. This issue features NASA's 8-Foot High-Speed Tunnel, located at Langley Research Center (LaRC) in Hampton, Virginia.

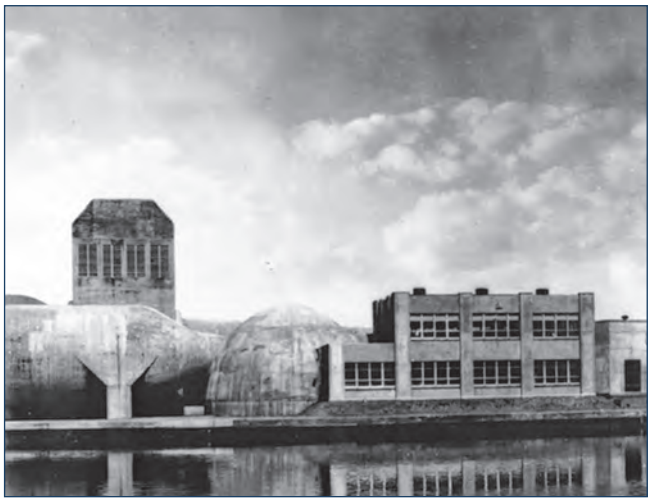
From New Deal to New Discoveries: 8-Foot High-Speed Tunnel

Langley Research Center, Hampton, Virginia

By Tina Norwood and Caroline Diehl

This year marks the 75th anniversary of Franklin D. Roosevelt's (FDR) New Deal. The anniversary provides NASA with an opportunity to showcase an NHL built under the New Deal. Kathryn Flynn is the Executive Director of the National New Deal Preservation Association (NNDPA), which is leading anniversary events throughout the year. In 2007, she came to a meeting of federal preservation officials in Washington, DC, asking them to consider what role the New Deal may have had in their agencies. Ms. Flynn states, "I'm pleased NASA followed up on this request. It's fascinating to learn that the reach of FDR's New Deal programs directly supported four NASA facilities including a national landmark."

Throughout the 1920s, the National Advisory Committee for Aeronautics (NACA), the predecessor agency to NASA, built the first wind tunnel complex at what was then Langley Memorial Aeronautical Laboratory ("Langley") located in Hampton, Virginia. Yet even with the world's first Full Scale Tunnel, completed in 1931, all the tunnels were subsonic. As Joseph Ames, Chairman of the NACA, recognized, the need to develop transonic research capabilities was a committee priority. By the late 1920s, Langley was already focused on designing the world's first high-speed tunnel (HST). The challenge was how to meet this emerging research need in the face of the Great Depression of the 1930s.



The 8-Foot HST at the NACA Langley Aeronautical Laboratory provided the means for testing large models and some full-scale components at a simulated speed of 500 miles per hour. (Image Number GPN-2000-001821)

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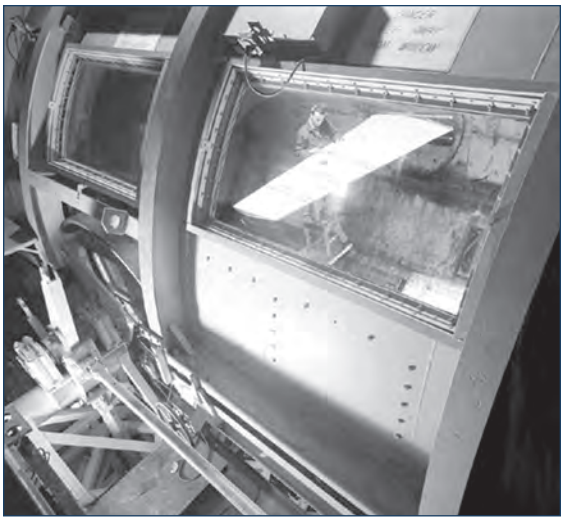
Quarterly Series: NASA's National Historic Landmarks (continued)

The 8-Foot High-Speed Tunnel, Facility Number 641, was the world's first large HST. Constructed at Langley in 1936, it is one of NASA's NHLs. It is renowned for its contribution to aeronautics and aerodynamics as well as to wind tunnel design and construction. Often overlooked are the challenges the NACA overcame to build the tunnel during the Depression. The NACA utilized two New Deal agencies to support the high-speed research needs at Langley. The 8-Foot HST was, in fact, the third high-speed tunnel constructed; it was preceded by two small HSTs.



An engineer from the NACA handles a wing model in the test section of the 8-Foot HST. (Image Number NASA L-46821)

Langley engineers not only faced the challenges of the Depression, but also the technical challenge of limited electrical power. To address these concerns, Dr. George W. Lewis, Director of Langley, encouraged the design engineers to utilize the power reserve created by the high-pressure exhaust of the existing Variable Density Tunnel (VDT). The resulting first HST was constructed in 1928 and had a vertically mounted, 11-inch test section. Though test runs were limited to 1 minute because the VDT exhaust after that time was too much for safety standards, this tunnel was successful in demonstrating the need to research flight instabilities further near Mach 1. The test results prompted Langley engineers to begin designing a 24-inch HST immediately. To meet the construction funding needs of this second small HST, Langley turned to a New Deal agency, the Public Works Administration (PWA).

The PWA was established by President Roosevelt in 1933. With the primary purpose of providing funding for the construction of public works, it supported the construction of several federal and nonfederal wind tunnels. The 1939 PWA publication *Public Buildings; A Survey of Architecture of Projects Constructed by Federal and Other Governmental Bodies Between 1933 and 1939* (C. W. Short and R. Stanley-Brown) cites $200,000 of PWA funds used for the construction of the "24-inch wind tunnel capable of producing wind velocities of 750 m.p.h., a free-spinning wind tunnel, and an engine research laboratory." The 24-inch HST and the engine research laboratory were both completed in 1934. The 24-inch HST no longer exists. The free-spinning wind tunnel referenced was the 15-Foot Spin Tunnel opened in 1935. Used to investigate airplane spin characteristics and corrective measures, it was replaced by the larger 20-Foot Spin Tunnel (Facility Number 645) in 1941. This tunnel remains in service. The engine research laboratory, now called the Engineer Technology Laboratory (Facility Number 646) is still in use.

Like the 11-inch HST, the 24-inch HST also had a vertically mounted test section and relied on the VDT to operate. While it could generate higher Reynolds numbers, the 24-inch HST also choked near Mach 1. It did, however, have the NACA's first schlieren optics system, which allowed researchers to see the shock waves produced. These first two HSTs were instrumental in providing NACA aerodynamic data used by the aviation industry. They also pointed to the need for an HST that could test much larger models and provide longer test runs. Recognizing that a large HST could give the United States an international advantage in aviation, Dr. Lewis authorized the design and construction of a large HST in July 1933. Eastman N. Jacobs suggested

the initial concept for the 8-Foot HST, and Russell G. Robinson and Manley J. Hood lead the design team. Again, Langley met its research needs through support from New Deal agencies.

The 8-Foot HST is featured in the 1939 Short and Stanley-Brown PWA publication, which states that it was designed and constructed under the supervision of NACA staff for $474,000. It is also reported in NASA records that the tunnel was financed by the Works Project Administration (WPA) for $266,000. To address this apparent discrepancy, the authors contacted the NNDPA. Robert Leighninger, NNDPA member and faculty associate at Arizona State University, explains that the PWA was the first and largest of the New Deal agencies. It focused on the traditional heavy-lifting public works like large public buildings, bridges, dams, and so on. These required planning, skilled labor, and machinery, all of which did little to make an immediate dent in the widespread unemployment of the Great Depression. As a result, the WPA was created in 1935 to concentrate on labor-intensive projects that would use lots of unskilled labor, require less planning, and be less dependent on machinery. As a rule of thumb, the PWA managed big projects and the WPA handled the smaller ones. So while Dr. Leighninger states that the two New Deal agencies typically operated independently, it appears that the construction of the 8-Foot HST involved both agencies.

Originally, Robinson and Hood planned a welded steel pressure vessel to support the test section. They designed this to address the Bernoulli effect, where the high-speed air in the test section would cause the static air pressure within it to be lower than in the rest of the tunnel. PWA officials proposed the idea of using concrete for the entire wind tunnel. To address the inward pressure, up to 750 pounds per square foot, 1 foot of reinforced concrete was used around the test section. This resulted in the unique igloo-shaped dome around the test section.

Using reinforced concrete instead of steel made the project relatively inexpensive and enabled the use of WPA laborers. Construction included the closed-circuit structure that tapers from 24 feet to 8 feet in diameter, supported on steel and concrete columns, as well as a two-story, steel-framed building containing offices and technician areas supporting tunnel operations. Construction was completed in March 1936.

The 8-Foot HST was first equipped with an 8,000-horsepower (hp) engine that drove an 18-blade propeller 16 feet in diameter. This generated wind speeds of up to 575 miles per hour (mph), 10 percent more than anticipated in the initial design. However, the mechanical energy of this propeller generated a lot of heat—theoretically enough for the temperature to reach the melting point of steel and damage tunnel structures and equipment. At the very least, major temperature swings would detrimentally affect tests. Robinson therefore designed a heat-exchanger tower above the tunnel that allowed the continuous exchange of some cool, outside air for heated air. Operating personnel located inside the tunnel's igloo-shaped test section were subjected to low atmospheric pressures, equivalent to a 12,000-foot altitude, when the engine ran at top speeds. To counteract these conditions, test personnel were housed in a special work station, wore deep-sea diving suits that provided oxygen, and entered and exited through an airlock. In all, the PWA funded the construction of four facilities at Langley. President Roosevelt must have been proud of New Deal contributions and research accomplishments when he toured Langley on 29 July 1940.

continued on next page

Quarterly Series: NASA's National Historic Landmarks (continued)

The onset of World War II increased the demand for aeronautical research, especially after test pilot Ralph Virden was killed in December 1941 while investigating the instability caused when diving a Lockheed P-38 Lightning fighter. The 8-Foot HST had already contributed to the development of high-speed propellers and engine cowlings; in 1942, it provided critical testing that led to the development of "dive recovery flaps." These were immediately designed into U.S. fighter aircraft and the first U.S. jet aircraft, the XP-59 Airacomet. Then, in December 1943, the tunnel's 8,000-hp motor failed. In February 1945, the wind tunnel reopened with a 16,000-hp motor and second-stage fan.

The most significant research contributions associated with this tunnel were realized in the postwar era. Aeronautical engineers had long suspected that solid-walled test chambers suppressed flow streamlines, thereby causing deceptive aerodynamic effects. They theorized that this interference problem could be counteracted by placing slots in the throat of a wind tunnel's test section. Langley physicist Ray H. Wright was the first to engineer a practical design for a "slotted throat" or "slotted wall" in the tunnel. In 1948, the NACA approved the conversion of the 8-Foot HST to a slotted test section. Engineers, including Richard T. Whitcomb, spent seven months fine-tuning the test section by hand. The tunnel was redesignated the 8-Foot Transonic Tunnel (TT) in October 1950. However, because this was confused with a later 16-Foot Transonic Pressure Tunnel (TPT), this designation was not kept. It is often referred to as the 8-Foot High-Speed/Transonic Tunnel. Langley engineers, led by manager John Stack, were recognized in 1951 for the successful application of the slotted throat and for achieving smooth transonic flow distributions in this tunnel.

NACA physicist Ray Wright suits up in a deep-sea diving suit in preparation for entering the test section of the 8-Foot HST. (Image Number NASA L-64110)

Research conducted in the tunnel is also associated with Richard T. Whitcomb. He earned the Collier Trophy in 1954 for one of the greatest achievements in aviation, an innovation called the "area rule" that revolutionized aircraft design. This work led to the use of a compressed, or "wasp-waisted," fuselage design for supersonic jet fighters; this design would allow them to break what was popularly known as the "sound barrier." However, even with the upgrades, Langley would only reach speeds of Mach 0.95 in the 8-Foot HST. The last major renovation to the tunnel was made in 1957, when wood fan blades were replaced with blades made of fiber-reinforced epoxy. The tunnel remained in use until 1961, when it was deactivated by NASA. NASA kept the tunnel operational for the next 15 years through scheduled maintenance. Then, in 1976, the fan blades, hub, nacelles, shaft, and turning vanes were removed and sent to Wright-Patterson Air Force Base in Ohio, where they were used in the construction of a new facility. Since then, the HST building has only been used for office and storage space by Langley Air Force Base.

J. Lawrence Lee, Ph.D., P.E., is an engineer-historian with the National Park Service Historic American Engineering Record (HAER) Office in Washington, DC. Dr. Lee states, "The 8-Foot HST provided NACA with significant, unprecedented capabilities that placed Langley at the forefront of the world's transonic aeronautical research. The unique design characteristics and major research milestones represented some of the foremost technological developments of the twentieth century." The historical significance of the facility and its many contributions to aerospace technology were recognized when it was designated an NHL in 1985 as part of the Man in Space Theme Study prepared by the NPS. The 8-Foot HST was grouped with facilities recognized as inactive sites that lack much of their original historic fabric but are still significant because of important events that occurred there.

President Roosevelt visits Langley on 29 July 1940. (Image Number NASA LaRC 2000-00360)

When the tunnel was excessed by NASA in 1999, Langley subsequently initiated consultation in accordance with the National Historic Preservation Act (NHPA). Langley also solicited outside organizations and universities to explore possible adaptive reuse or heritage tourism opportunities for the tunnel. Due to the lack of interest and funding to support such alternatives, Langley is now preparing to demolish the tunnel circuit. This course of action will enable NASA to return the site to the U.S. Air Force, which owns the land (the NACA leased the site). NASA plans to transfer the office wing portion of the facility for continued Air Force use. In order to mitigate the adverse effect of demolishing the tunnel, Langley has conducted additional documentation and recordation of the facility. This includes preparation of HAER Level 1 documentation, which provides a permanent record of drawings, photographs, and histories that will be maintained in a special collection at the Library of Congress. It not only supports the preservation of the NACA legacy, but it also provides information that will be available to future architects and aeronautical engineers. Langley has also prepared documentation on the tunnel, which is available to the public via Langley's Master Plan Web site. The Web site includes interior and exterior photographs of the tunnel, film clips of old research projects, a virtual-reality tour of the tunnel, and copies of the HAER documentation and is available at *http://gis.larc.nasa.gov/masterplan/section7_public/.*

Information for this article was provided by Rodney Harris, LaRC Historic Preservation Officer, and presented in the Historic American Engineering Record Addendum, prepared in February 2006 for NASA LaRC under contract with Science Applications International Corporation (SAIC), as well as by J. Lawrence Lee, Ph.D., P.E., of the National Park Service. For additional information, contact Caroline Diehl, SAIC, at caroline.a.diehl@nasa.gov*, or Tina Norwood, NASA Federal Preservation Officer, at* tnorwood@hq.nasa.gov.

Other Aerospace History News

News from the National Air and Space Museum

Michael J. Neufeld (Chair of the Division of Space History) has won the Richard W. Leopold Prize of the Organization of American Historians for *Von Braun: Dreamer of Space, Engineer of War*. The prize is presented every two years for the best book by a historian in government service. In addition, the book has been nominated as a finalist in the biography category of the *Los Angeles Times* Book Prizes. The prizes were awarded at a dinner in Los Angeles at the end of April. Neufeld has been speaking extensively about the book, as well as papers spun off from the book, in such areas as Kansas City; New Haven (Yale); Bielefeld, Germany; Copenhagen; Huntsville; Cleveland (Case Western); Baltimore (Johns Hopkins); and Atlanta (National Archives/Georgia Tech). The book will appear in paperback by Vintage in November 2008, and in Danish and German in 2009.

Roger D. Launius (Space History), has published "An Historical Overview of U.S. Manned Space Exploration," in Daniel Lee Kleiman, Karen A. Cloud-Hansen, Christina Matta, and Jo Handlesman, eds., *Controversies in Science and Technology: Volume 2, From Climate to Chromosomes* (New Rochelle, NY: Mary Ann Liebert, Inc., 2008), pp. 205–236.

Roger has also participated in several professional conferences: as a panelist on "Careers in Federal History: A Panel Discussion," American Historical Association, Washington, DC, 5 January 2008; as presenter of "Abandoned in Place: Interpreting the Material Culture of the Space Race" and "An Unintended Consequence of the IGY: Eisenhower, Sputnik, and the Founding of NASA," both at the 46th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, 7 January 2008; as a participant on the Synthesis Panel, "National Space Forum 2008: Space Challenges Facing the New American Administration of 2009," Washington, DC, 7 February 2008; and as moderator for the "Fifty Years of the Space Age" session, American Association for the Advancement of Science, Boston, Massachusetts, 15 February 2008. In addition, he was selected as a Fellow of the American Association for the Advancement of Science in 2007. The awards ceremony was held at the AAAS annual meeting in Boston on 16 February 2008.

Finally, Roger Launius received the Charles Thomson prize awarded by the Society for History in the Federal Government for his article "Sphere of Influence: The Sputnik Crisis and the Master Narrative," *Quest: The History of Spaceflight Quarterly* 14, no. 4 (2007): 6–18. The awards committee said this of the article:

> It is a rare scholar who has the breadth and depth of experience to challenge the master narrative in an important area of history, but that is what Roger Launius has done in this impressive article. The "master narrative" regarding the 1957 launch of the Soviet Sputnik satellite has it that America was taken by surprise by this event and that it produced a climate of fear and crisis; and that the nation rallied behind the leadership of President Eisenhower to a concerted effort that led to the creation of NASA and our subsequent success in dominating the world in space science. The Launius paper convincingly calls into question key parts of this narrative. Launius suggests that it was not so much shock and fear as it was a loss of prestige that America suffered in the face of Sputnik. And while the public may

have been surprised, government scientists and military officials were well aware of the Soviet efforts and were actively engaged in similar efforts of our own. He also suggests that President Eisenhower was politically outmaneuvered over the issue and that NASA was created against his wishes. And finally, he questions the whole aura of triumphalism involved in this story and suggests that the course of America's role in space would probably have been more or less the same if there had been no Sputnik. This bold and innovative paper is an outstanding example of the kind of scholarship that the Society wishes to honor with its Charles Thompson prize.

Von Hardesty (Aeronautics Division) has published a new book, *Black Wings: Courageous Stories of African Americans in Aviation and Space History* (with an introduction by astronaut and former NASA Deputy Administrator Fred Gregory), a joint HarperCollins/Smithsonian publication. Also recently published was his *Milestones of Aviation* (Universe). He served as editor and contributor for this revised and expanded version of the 1989 title, edited by John T. Greenwood. It is an illustrated anthology with contributions from several historians, including the Aeronautics Division's own John Anderson.

National Geographic Books plans to issue a paperback of *Epic Rivalry*, which Hardesty coauthored with Gene Eisman. The paperback edition will coincide with the 50th anniversary of NASA. The book was recognized at a special reception at the Embassy of the Russian Federation on 16 November 2007.

Calls for Papers

Society for History in the Federal Government Online Journal

The Society seeks papers for its new online, peer-reviewed history journal to be published in the fall of 2008. The journal will promote scholarship on all aspects of the history and workings of the federal government, from 1776 to the present, and on relationships between the development of American society and government. In addition, the journal will feature research articles on methodological developments in federal historical work, including the fields of history, archival science, historic preservation, public history, museum studies, Web-based history, memory studies, and other related areas. Submitted manuscripts must be fully documented and follow the submission standards posted at our Publications link at *http://www.shfg.org.* Send the manuscript, an abstract, brief biographical information, and information on available images to *editor-shfg-journal@shfg.org*. Deadline: 30 May 2008.

Quest: The History of Spaceflight Quarterly

David Arnold, editor of *Quest: The History of Spaceflight Quarterly*, is seeking articles for publication. For more about the journal, see *http://www.spacebusiness.com/quest/.* Dr. Arnold sent a note to the editorial board indicating that he has a terrific issue coming together for the 50th anniversary of the Space Age but is looking for additional items pertaining both to the anniversary and to other non-anniversary-related

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Calls for Papers (continued)

topics for upcoming issues. If you have possible articles for publication or know of people who might have articles for publication, please contact Dr. Arnold at *historyofspace@aol.com*.

International Test and Evaluation Association Journal

The *Journal of the International Test and Evaluation Association* (ITEA) is looking for history articles. Each quarter, there is a column entitled "Historical Perspectives" involving short historical sketches of up to 1,200 words, with three or four photographs to accompany them. Longer historical pieces have also been published in the main part of the journal about subjects of special interest to the association.

The subject matter for these columns has been intentionally broad. The editors are appealing to a wide range of test and evaluation (T&E) practitioners—not so much professional historians—so it is important to publish subjects that are varied and novel to keep the readers interested. The journal has done one article about an incident involving flight testing during World War I, another on truck fairing tests designed to increase fuel economy during the energy crisis of the 1970s, and a third on the human factors—not just the machinery—involved in the near-fatal crash of a pilot of one of the NASA lifting bodies. All have endnotes and, although short, offer good scholarship to pique further reading and fresh perspectives.

All periods of history are open, and T&E is defined liberally: in the modern sense of complex, computerized experiments, but also the much less complex T&E as understood in earlier periods. For example, articles can be about specific aircraft (or subsystem) tests, influential individuals in the field of testing, technological turning points, or unique supporting subjects (for instance, the T&E of airline food!). It can also be a first-person account. Moreover, submissions need not be dominated solely by test and evaluation; ideally, they will feature T&E in some broader context.

Finally, the journal is informal in its editorial process. The journal gives the historical editor wide latitude to find submissions, so once he makes contact with a potential author and hashes out a subject, it is very likely that it will indeed be published. For more information, please contact Michael Gorn, Ph.D., NASA Dryden Flight Research Center, at *michael.gorn@dfrc.nasa.gov*.

Space Times

Space Times, the bimonthly magazine of the American Astronautical Society (AAS), is in search of articles for publication. Articles may cover virtually any topic involving space science, technology, exploration, law, or policy. Articles that touch on issues relevant to the civil, commercial, military, and intelligence space sectors alike are also welcomed. Articles should be written for a well-educated audience that has a great interest in space topics but may not necessarily be familiar with the author's specific topic. They should therefore be written in active voice, with a clear explanation of technical concepts provided. Submission of photos or other visual support is encouraged, but not required, and must be provided in high resolution (at least 300 dpi) and in JPG, TIF, or GIF format. Please provide proof of permission from the owner of any photos or visuals; if permission has not already been obtained, provide contact information for the owner. For more information, visit *http://www.astronautical.org*.

Upcoming Meetings

25–27 September 2008, "John F. Kennedy: History, Memory, and Legacy: An Interdisciplinary Conference" will be held at the University of North Dakota in Grand Forks, North Dakota. President Kennedy's special counsel, adviser, and speechwriter, Theodore Sorenson, will be one of the keynote speakers for the conference. Please visit *http://www.und.nodak.edu/instruct/jfkconference/* for more information.

11–14 October 2008, The Society for the History of Technology (SHOT) will be hosting "SHOT @ 50: Looking Beyond" in Lisbon, Portugal. Please visit *http://www.shotlisbon2008.com/* for more information.

13–15 November 2008, "Aeronautical Culture: Artifacts, Imagination, and the Practice of Aeronautics 18th–20th Century," organized by the Centre d'histoire des techniques et de l'environnement (CDHTE/CNAM) and the Centre Alexandre Koyré—Centre de recherches en histoire des sciences et techniques (CAK-CRHST/CNRS), with the participation of the Aéro-Club de France, the Département d'histoire de l'armement (DGA/CHEAr), and the Musée de l'air et de l'espace, and supported by numerous institutions, will be held in Paris. Please see *http://shotnews.net/?p=419* for more information.

Obituaries

Donald S. Lopez, 84

Donald Lopez, deputy director of the Smithsonian's National Air and Space Museum, died on 3 March in Durham, North Carolina. According to his son, Donald Jr., the cause was a heart attack.

Mr. Lopez had been with the Smithsonian Institution since 1972 and was instrumental in the construction and development of the National Air and Space Museum. As Assistant Director for Aeronautics, he collaborated with Apollo 11 astronaut Michael Collins in coordinating the opening of what is now today's most visited museum in the world.

Mr. Lopez became deputy director in 1983 and served in that capacity until 1990, at which point he acted as senior adviser to the director before retiring in 1993. From 1993 to 1996, Mr. Lopez functioned as senior adviser emeritus and was again appointed deputy director in 1996.

Before joining the Smithsonian, Mr. Lopez was an acclaimed fighter pilot. He began his military service in 1942 upon graduation from the University of Tampa in Florida. During World War II, he shot down five Japanese planes, giving him recognition as an ace. Following World War II, Mr. Lopez was an Air Force test pilot, flew jets in the Korean War, and received a bachelor's degree in aeronautical engineering from the Air Force Institute of Technology; he also received a master's degree in aeronautics from the California Institute of Technology. He then began teaching at the U.S. Air Force

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Obituaries (continued)

Academy as an associate professor of aeronautics and chief of academic counseling. He retired from the U.S. Air Force as a lieutenant colonel in 1964 and began work as a Systems Engineer on the Apollo-Saturn Launch Vehicle and Skylab Orbital Workshop for Bellcomm, Inc.

In addition to his son, Mr. Lopez is survived by his wife, Glindel; his daughter, Joy Lopez; and granddaughter, Laura Lopez. The family has asked that anyone who would like to honor his memory make donations to the National Air and Space Museum Donald S. Lopez Memorial Fund.

For more information on Donald Lopez, please visit *http://www.nasm.si.edu/events/pressroom/presskits/lopez/lopez_background.cfm.*

Robert Jastrow, 82

Robert Jastrow, an astronomer and science administrator, died of pneumonia on 8 February at his home in Arlington County, Virginia.

Dr. Jastrow was the former head of NASA's Goddard Institute for Space Studies in New York and helped found the George C. Marshall Institute in Washington, DC, in 1984.

Dr. Jastrow was born in 1925 in New York. He graduated from Columbia University with undergraduate and doctoral degrees in physics. He became an assistant professor at Yale University and then joined the Naval Research Laboratory. In 1958, Dr. Jastrow joined NASA as the head of its theoretical division, where he conducted research in fields such as cosmology and astronomy.

In 1961, Dr. Jastrow became Director of the Goddard Institute for Space Studies and worked on projects such as Pioneer, Voyager, and Galileo. In 1984, he helped found the George C. Marshall Institute and was chairman emeritus of the institute until his death. In 1992, he also became chairman of the Mount Wilson Institute, which runs the Mount Wilson Observatory in California.

Dr. Jastrow was a frequent television guest and the author of numerous magazine and newspaper articles. He was often quoted by both policy-makers and partisans and was a commentator on a wide variety of subjects such as the space program, astronomy, Earth science, and national security issues.

Dr. Jastrow was briefly married to the former Ruth Witenberg in 1967, and he leaves no immediate survivors.

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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 Steve Garber, newsletter editor, at *stephen.j.garber@nasa.gov.*

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