Anniversaries are appearing on calendars on a regular basis, which in some ways attests to the significance of events 50 years ago: From the Soviet launch of Sputnik in October 1957 to the U.S. launch of Explorer 1 (our namesake) in January 1958 … and looking down the road we see NASA’s birthday looming prominently.

As much as I enjoy a good celebration, I prefer instead to anticipate future anniversaries, such as setting the cornerstone for the first permanent human settlement on the moon, and the first human landing on Mars. I like to think that current spaceflight activities around the world are laying the groundwork for new anniversaries and celebrations and providing fodder for future historians.

The History Committee met during the Society’s national conference in Houston in November. The meeting was very well attended (there are worse places to be than Houston in November), including some remote participants.

I always seem to get an adrenaline rush coming out of these meetings, flush with ideas and plans. The results of the meeting are reflected in the History Committee’s goals listed on page six of this newsletter, along with reports on various activities.

I appreciate the opportunity that History Committee membership has provided to mix and mingle with such a fascinating group of folks. I look forward to our efforts over the coming year to bring our ideas to fruition.

In the absence of clearly-defined goals, we become strangely loyal to performing daily trivia until ultimately we become enslaved by it.

— Robert Heinlein (1907 - 1988)

www.quotationspage.com
Space history common theme of ‘Space Show’

By Matt Bille

Space history tends to get short shrift in the mainstream media, except during anniversary years and when someone wants to make a comparison (often an irrelevant one) to the success of Apollo. Fortunately, there are sources that fill in the gap and maintain a flow of information. One of these is “The Space Show.”

The brainchild of Dr. David Livingston, “The Space Show” is heard live on one radio station (AM 1150 in Seattle) but has a global following through Internet broadcasting. The show is available as a podcast on the iTunes Web site.

Livingston is a business consultant and space aficionado who wrote his dissertation on space commerce. As the program he created approaches its seventh anniversary, Livingston reflected on the show’s evolution and its value as a resource for space history.

“I am actually overwhelmed by the growth of the show, including the international growth,” he said.

The number of high-profile guests has grown along with the show’s reputation.

“Early on, it was very difficult to have people on from NASA, Boeing and many other organizations or special interest groups. I still run into some problems with some government agencies and large private corporations, but often I am now contacted to do a show around a top person.”

On space history, “I can tell you that some of my favorite topics are talking about how space development can improve our living here on Earth, inspiring others to be the best they can be,” he said. “I also enjoy the oral histories by the gray beards that have been guests. On “The Space Show,” gray beards are not just limited to rockets and engineering but also to oral histories.”

“Several of the Apollo and Gemini astronauts have

Continued on next page ➤
IN THE NEWS

THE SPACE SHOW
Continued from Page 2

been on, like Wally (Schirra) for example. We talked lots of history. A good many of the Saturn 5 guys have been on. People who wrote terrific books on the Atlas rocket’s history, the Saturn 5, Dyna-Soar and so much more.”

The anniversary of Sputnik, the first satellite in space, brought an unusual number of history shows for 2007. Guests included best-selling author Andy Chaikin, Soviet-era space scientist Dr. Roald Sagdeev (from Moscow), writer Paul Dickson and journalist Jay Barbree of NBC.

Livingston is gratified by the role his show serves in preserving space history.

“I have 872 shows, and many of them refer to space history even if that was not the major subject. One can search for a guest by last name, so I would advise an interested person to go to www.thespaceshow.com and use the “Guest search tool” in the middle of the page in the upper half of the Web site.

“First, do a search for the last name of a guest you are interested in and see if the person has been on the show. If so, it shows you the date the person was on and then on the Web site you can simply go to that specific show. If a reader is looking for a specific history subject, please e-mail me with the subject. I can see if a program has addressed that issue, its date and by who, as I can search files that are not part of the Web site,” he said.

What if a listener wants to suggest a guest?

“If the person you had in mind has not been on, please send me a note at drspace@thespaceshow.com and suggest the person. Include contact information if you have it,” he said.

“The Space Show” now broadcasts four times a week. Listeners can subscribe to an email bulletin announcing the guests for each show.

On Oct. 3, 2007, Matt Bille was a guest on “The Space Show” with Erika Lishock, whom he collaborated with to write “The First Space Race.” Bille says Livingston is highly knowledgeable and keeps the program moving with his own questions and comments plus those from listeners who range from astronauts to entrepreneurs (not to mention a few eccentrics).
Peter J. Westwick received the 2006 Emme Award for Astronautical Literature at the American Astronautical Society's national conference in November in Houston for Into the Black — JPL and the American Space Program, 1976-2004.

Published by Yale University Press, the book recounts the extraordinary story of the Jet Propulsion Laboratory's accomplishments, failures and evolution. (See review on next page).

Westwick teaches about the history of modern science and technology at the University of California, Santa Barbara. He is currently doing research for a book about the Strategic Defense Initiative.

In addition to Westwick's book, aerospace historian Maura Mackowski was recognized with an honorable mention at the national conference for Testing the Limits — Aviation Medicine and the Origins of Manned Space Flight (Texas A&M University Press).

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

Auburn University history professor James R. Hansen was the recipient of the award last year for First Man – The Life of Neil A. Armstrong (Simon & Schuster).

Nominations sought for 2007 Emme Award

The History Committee is soliciting nominations for the 2007 Eugene M. Emme Award for Astronautical Literature. Please send nominations to: michael.l.ciancone@nasa.gov. Please be sure to identify the title, author, and include publisher contact information, if known, such as mailing address or Web site URL.
Evolution of space institution extraordinary

Peter J. Westwick, Into the Black — JPL and the American Space Program, 1976-2004 (Yale University Press).

By Rick W. Sturdevant

Recipient of the AAS 2006 Eugene M. Emme Astronautical Literature Award, Peter Westwick’s Into the Black combines solid narrative with thoughtful analysis to deliver a rich slice from the nearly 70-year history of the Jet Propulsion Laboratory.

Picking up the story line where Clayton R. Koppes’ JPL and the American Space Program (1982) left off, Westwick draws from an impressive variety of primary and secondary sources to explain the further evolution of one of America’s foremost space institutions. His candid assessment of how external forces affected JPL’s development and how JPL, in turn, influenced the world beyond its walls helps us understand how this illustrious enterprise not only survived, but thrived, despite the vicissitudes of time.

Organized in three parts that coincide chronologically with the tenure of three different directors—Bruce Murray (1976-1982), Lew Allen (1982-1991), and Edward Stone (1991-2001)—Into the Black probes their respective leadership traits, visions for, and influences on JPL. Although Murray might have been selected to promote innovation after conservative William Pickering’s tenure, Murray’s own underlying conservatism led to the perpetuation of traditional practices and processes, especially when it came to building spacecraft. Allen, who succeeded Murray, shunned his predecessor’s visionary, mercurial approach to managing laboratory affairs, preferring instead a politically quiet, methodical style that enabled JPL to maintain internal stability and recover its main mission in planetary exploration.

By the time Allen stepped down and the innately cautious Stone took over, the latter felt compelled by declining budgets to undertake revolutionary change in the form of a “faster, better, cheaper” approach to building interplanetary spacecraft. When he retired in 2001, Stone left an accumulation of unpopular decisions that prompted new director Charles Elachi to defend JPL’s culture against those who would change it by embracing corporate management philosophies.

A recurring theme in Westwick’s treatise is the “JPL-Caltech-NASA triangle.” He explains the longstanding academic and administrative tension between the laboratory and the California Institute of Technology from which it originated. Despite the 1976 “orange report,” which recommended various steps to improve campus-lab interaction, more than a geographic gulf persisted between JPL and Caltech. Incentives certainly existed for Caltech to divest from JPL, but the management fee that NASA awarded Caltech on the JPL contract constituted a significant proportion of the campus budget. Administrators at Caltech tended to concern themselves with broad policy issues involving JPL, leaving most programmatic decisions to NASA and the lab’s director. Because JPL had a basically ambiguous role as independent contractor and NASA lab, expansion of JPL’s non-NASA work in the 1970s and 1980s tilted the triangular relationship in favor of “Caltech’s JPL,” and the phase-out of such work in the 1990s shifted it back toward “NASA’s JPL.” Essentially, JPL’s continued existence depended on its ability to adapt in balancing its autonomy and its accountability to others.

Successes and failures in specific JPL interplanetary missions also undergo Westwick’s scrutiny. From the two Voyager spacecraft in the 1970s to the Magellan and Galileo projects in the 1980s, and from Cassini in the 1990s to “a multitude of missions” at the beginning of the twenty-first century, Into the Black reminds readers how challenging it is to triumph over human frailties and “galactic ghouls.” Sometimes the margin between victory and defeat is razor thin. Westwick suggests that diversification into fields ranging from earth sciences and astronomy to energy, defense, and microelectronics helped “damp the amplitude of the success-failure curve” for JPL’s planetary missions. Still, he finds validity in the common saying around JPL that “the lab is one failure away from closing, and one transistor away from failure.”

Certainly not the final word on JPL, Westwick’s book nonetheless goes far toward preserving the history of this remarkable institution.
NOTES FROM AAS NATIONAL MEETING

Looking back at 50 years of human spaceflight

By Rick W. Sturdevant

The 54th annual meeting of the American Astronautical Society in November in League City, Texas, celebrated 50 years of spaceflight while asking what the future might hold.

It was promising to witness the presence of so many next-generation space professionals and to hear more interaction between presenters and audience members than in many years past.

MIT’s Maria Zuber delivered a wonderful Sagan Memorial Lecture on our changing view of Mars.

Keynote speaker Neil Milburn from Armadillo Aerospace entertained listeners with the fascinating story of his life as an engineer.

The first panel session featured historical and scientific perspectives on how an informed understanding of the past can help direct future space activities.

One session allowed next-generation leaders themselves to explain what they believe to be the future of space exploration.

Representative from the various participants in the International Space Station program laid out their respective plans for activities aboard that platform, and other sessions focused on international coordination of space exploration activities and on the space frontier’s policy and political landscape as Americans anticipate the elections of 2008.

Geophysicist Maria Zuber receives the 2007 Sagan Memorial Award from AAS President Mark Craig.

HISTORY COMMITTEE GOALS FOR 2008

The following list comprises the goals of the History Committee for 2008:

- Work with Univelt Inc. to publish three volumes in the AAS History Series, plus an Index of IAA History Series papers, 1967-2000, which was prepared by the IAA History Study Group.
- Complete editorial work on the ABC-CLIO/AAS space history encyclopedia project.
- Select the recipient of the 2007 Emme Award for Astronautical Literature.
- Assess History Committee charter and implement recommendations of the Doyle Working Group.
- Produce three editions of Explorer.
- Provide Space Times with four book reviews.
- Add two new members to the AAS History Committee (nominations welcomed).
- Support activities to celebrate 50th anniversary of NASA.
- Initiate compilation of college-level space history courses and programs available nationally, eventually to include sample syllabi and other information.
- Expand the AAS awards program to include an annual award for the best published article on astronautics or spaceflight history.
- Support the efforts of Space Times by encouraging members to provide articles to Space Times for publication.
CALL FOR PAPERS

2008 annual conference of the Society for the History of Technology

The Society for the History of Technology will hold its annual meeting in Lisbon, October 11-14, to continue the celebration of the 50th anniversary of the founding of the society.

The theme of last year's conference was “SHOT@50: Looking Back.” This year it will be “SHOT@50: Looking Beyond.” To that end, SHOT’s Program Committee seeks papers or sessions for the 2008 meeting that concern the history of technology as it may or ought to be practiced in the future.

Papers or sessions devoted to the question of how the history of technology should be written in the future are particularly encouraged. To serve the purpose of “looking beyond,” the committee seeks papers or panels reaching out beyond SHOT’s current disciplinary boundaries. The committee will also consider papers of high quality on any aspect of the history of technology, broadly defined.

The committee welcomes proposals for individual papers or sessions, as well as works-in-progress from researchers of all levels (including graduate students, chaired professors and independent scholars). The Committee welcomes proposals from those new to SHOT, regardless of discipline. The committee will also consider alternative venues for presenting one’s scholarship, such as poster sessions, short (8-minute) quick sessions, author-meets-critics panels, discussion of pre-circulated papers, and others.

The deadline for submission is March 14.

Submission instructions

1) Materials should be sent as a single text attachment to an e-mail message to the Program Committee Chair, Martina Hessler, at: shot@em.uni-frankfurt.de
2) Proposals for complete sessions as well as individual papers shall be submitted in one file.
3) Please adhere to the 600-word limit for each paper. Use no unusual fonts or special formatting, and save your attachment either as a Microsoft Word document (.doc) or as a Rich Text Format (.rtf) file. Nearly all word processing programs, including those used on the Macintosh, can save text in the Rich Text Format. Do not use Adobe Acrobat (pdf).
4) Name your attachment with your last name and the word ‘proposal’, e.g. ‘Smith_proposal.doc’.
5) A session organizer should also deliver a description of the overall session. If you are organizing a session and proposing a paper in that session, you will be delivering both an “abstract” and “proposal”, plus your c.v.
6) If you are proposing a non-traditional session you may indicate that in the “abstract.” These also require a curriculum vitae.

Quest: The History of Spaceflight Quarterly

David Arnold, editor of Quest: The History of Spaceflight Quarterly, is seeking articles for publication. The journal is published quarterly and is dedicated to the history of spaceflight. Stories cover the people, projects and programs that comprise the civil, military and commercial space programs of the world.

Articles submitted by amateur and professional historians are welcome. For more about the journal, see http://www.spacebusiness.com/quest, or contact Arnold at: historyofspace@aol.com.

To have requests for papers added to the AAS history committee’s newsletter, send announcements to TMCspace@aol.com. (Attn: Tim Chamberlin, Explorer editor)
ROBERT JASTROW (1925-2008)

Led Goddard Institute of Space Studies for two decades

Robert Jastrow, a former NASA scientist who helped popularize space science and lunar exploration at the height of the space race, died Feb. 8 at the age of 82.

Jastrow was a regular guest on national television programs to talk about space and exploration, and wrote many best-selling science books.

Jastrow earned a doctoral degree in theoretical physics from Columbia University in 1948 and later became an assistant professor at Yale University in 1953. He then served on the staff at the Naval Research Laboratory from 1954-1958.

After its formation in 1958, NASA appointed Jastrow director of its theoretical division. The agency named him director of the Goddard Institute of Space Studies in 1961, a branch of the Goddard Space Flight Center in Greenbelt, Md., where he stayed at its helm for 20 years before becoming professor of earth sciences at Dartmouth. Jastrow contributed to robotic programs such as Pioneer and Voyager, which became NASA’s most successful long-term planetary missions.

He specialized in nuclear physics, plasma physics, geophysics, and the physics of the moon and terrestrial planets.

His books included Red Giants and White Dwarfs – The Evolution of Stars; Planets and Life; Until the Sun Dies; and Journey to the Stars – Space Exploration Tomorrow and Beyond.

Astronaut Alan Shepard is seen swinging a golf club on the moon in this image taken from a NASA video.

GOLF AND SPACE

Moon club and shuttle putter on display at cosmosphere

The United States Golf Association Museum recently partnered with the Kansas Cosmosphere and Space Center in Hutchinson, Kan., to commemorate the 50th anniversary of spaceflight.

The USGA Museum agreed to loan the 6-iron golf club that Alan Shepard used to hit a golf ball on the moon in 1971 during the Apollo 14 mission, and Brian Duffy’s Space Shuttle putter, flown to space during Endeavour mission STS-72 in 1996.

Both clubs were to be on display at the space center through Feb. 17.

Shepard attached a clubhead to a tool used to pick up rock samples from the moon, forming a makeshift 6-iron that he used with one hand. Shepard donated the club to the USGA three years later during the U.S. Open. Duffy received a putter as a gift while in orbit where the club was used by crewmates during mission downtime.

The USGA claims that both clubs are among the more popular artifacts at the golf museum in Far Hills, NJ.

International Space Station Expedition 14 flight engineer Mikhail Tyurin was the last person to hit a golf shot in space as part of a spacewalk in November 2006. Tyurin shanked the shot using a gold-plated 6-iron.

SPACEFLIGHT AND EXPLORATION

Study reviews changes in U.S. government and legislation

History Committee member Steve Doyle recently completed a study for NASA on “The Impact of Spaceflight and Space Exploration on the Laws and Governmental Structure of the United States.”

This 142-page narrative recounts changes in law and governmental structures from 1945 to 2005.

Five chronological appendices appear in the study: (1) Significant U.S. national laws generated by spaceflight; (2) significant U.S. governmental organizations created in response to spaceflight; (3) significant presidential executive orders and policy directives; (4) significant international treaties and agreements; and (5) National Security Presidential Directive NSPD-49, dated Aug. 31, 2006, containing current U.S. national space policy.

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Lunar science and exploration are focus of institute 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 service module.

According to the Web site, “there are technical documents that describe exploration strategies, equipment, and geological tools used to explore the lunar surface, plus Apollo landing site descriptions and Apollo mission summaries.”

Also available are “digitized photographic images of the moon taken from Earth, from spacecraft orbiting the moon, from astronauts and their equipment on the lunar surface and by spacecraft flying by the moon.”

The site also includes design documents related to the new Constellation vehicle.

To visit the Web site, click here.

JPL reviews history of first American satellite in space

The California Institute of Technology’s Jet Propulsion Laboratory has added a special section to its Web site celebrating the 50th anniversary of Explorer 1, the first U.S. satellite in space.

To visit the site, click here.

Bookseller posts results of poll naming rarest space books

A poll recently conducted to determine the rarest space books that contribute the most to the understanding of spaceflight, and the rarest signed space books, is available online.

Conducted by Boggs SpaceBooks of Anderson, Ind., at the end of last year, two lists have been posted offering brief descriptions of the top volumes selected by its customers and space history enthusiasts. These include X-15 Research Results (NASA SP-60) and Saturn V Flight Manual (SA 506).

To see the full results of the poll, visit Boggs Spacebooks by clicking here.
ASTRONAUTICAL BOOKS PUBLISHED IN 2007

The following list is published annually and is compiled by members of the History Committee:

A-F (Listed by author)

Angelo, Joseph A. Human Spaceflight (New York: Facts-on-File)

Barbree, Jay. Live from Cape Canaveral: Covering the Space Race from Sputnik to Today (Washington, DC: Smithsonian Books)


Bond, Peter. Distant Worlds: Milestones in Planetary Exploration (Copernicus Books)


Brzezinski, Matthew. Red Moon Rising: Sputnik and the Hidden Rivalries that Ignited the Space Race (New York: Henry Holt and Co.)

Burgess, Colin, and Chris Dubbs. Animals in Space: From Research Rockets to the Space Shuttle (Chichester, United Kingdom: Springer-Praxis)


Clément, Gilles, and Angelia Bukley. Artificial Gravity (Chichester, United Kingdom: Springer-Praxis)

Collins, Martin. Editor. After Sputnik: 50 Years of the Space Age (New York: Smithsonian Books / HarperCollins)


Dick, Steven J., Robert Jacobs, Constance Moore, and Bertram Ulrich. Editors. America in Space: NASA’s First Fifty Years (New York: Abrams)


Duggins, Pat. Final Countdown: NASA and the End of the Space Shuttle Program (Gainesville, FL: University Press of Florida)

Forget, François, François Costard, and Philippe Lognonné. Planet Mars: Story of Another World (Chichester, United Kingdom: Springer-Praxis)


Continued on next page ➤
ASTRONAUTICAL BOOKS PUBLISHED IN 2007

F-L (Listed by author)


Genta, Giancarlo. *Lonely Minds in the Universe* (Chichester, United Kingdom: Springer-Praxis)


Graham, Thomas, Jr., and Keith Hansen. *Spy Satellites and Other Intelligence Technologies That Changed History* (University of Washington Press)

Gnutman, Mike. *From Astronautics to Cosmonautics* (North Charleston, SC: BookSurge Publishing)

Handberg, Roger, and Zhen Li. *Chinese Space Policy: A Study in Domestic and International Politics* (New York: Routledge)


Harland, David M., and Brian Harvey. *Space Exploration 2008* (Chichester, United Kingdom: Springer-Praxis)

Harvey, Brian. *Russian Planetary Exploration: History, Development, Legacy, and Prospects* (Chichester, United Kingdom: Springer-Praxis)

Heiken, Grant, and Eric Jones. *On the Moon: The Apollo Journals* (Chichester, United Kingdom: Springer-Praxis)

Hendrikx, Bart. *Energiya-Buran: The Soviet Space Shuttle* (Chichester, United Kingdom: Springer-Praxis)


Hunley, J.D. *The Development of Propulsion Technology for U.S. Space-Launch Vehicles, 1926-1991* (College Station, TX: Texas A&M University Press)


Kennedy, George P. *Touching Space: The Story of Project Manhigh* (Schiffer Publishing)


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**ASTRONAUTICAL BOOKS PUBLISHED IN 2007**

**L-Z (Listed by author)**

Levin, Frank. *Calibrating the Cosmos: How Cosmology Explains Our Big Bang Universe* (Chichester, United Kingdom: Springer-Praxis)

Lipartito, Kenneth, and Orville R. Butler. *A History of the Kennedy Space Center* (Gainesville, FL: University Press of Florida)


Michaud, Michael A.G. *Contact with Alien Civilizations: Our Hopes and Fears about Encountering Extraterrestrials* (New York: Copernicus Books)

Miller, Ron. *Space Exploration* (New York: Twenty-First Century Books)

Moore, Sir Patrick and H.J.P. Arnold, *Space: The First Fifty Years* (Mitchell Beazley)

Neufeld, Michael J. *Von Braun: Dreamer of Space, Engineer of War* (New York: Alfred A. Knopf)

Norris, Pat. *Spies in the Sky: Surveillance Satellites in War and Peace* (Chichester, United Kingdom: Springer-Praxis)


Rapp, Donald. *Human Missions to Mars: Enabling Technologies for Exploring the Red Planet* (Chichester, United Kingdom: Springer-Praxis)


Sparrow, Giles. *Spaceflight: The Complete Story From Sputnik to Shuttle – and Beyond* (Dorling Lindersley)


Tyson, Neil deGrasse. *Death by Black Hole: And Other Cosmic Quandries* (New York: W. W. Norton and Company)


Watson, Fred. Editor. *Astronomica: Galaxies, Planets, Stars, Constellation Charts, Space Exploration* (Millennium House)


Woodcock, Gordon R. *Space Exploration: Missions Engineering* (Malabar, FL: Krieger Publish Co.)

Woods, W. David. *How Apollo Flew to the Moon* (Chichester, United Kingdom: Springer-Praxis)
PRELIMINARY PROGRAM

TUESDAY, MARCH 4
6:00 pm Future leaders networking reception open to all attendees
   (Sponsored by Lockheed Martin)

WEDNESDAY, MARCH 5
7:15 a.m. Corporate members breakfast
7:30 Registration opens with continental breakfast
8:30 Welcome
   ■ Frank Slazer, AAS President

8:40 Introduction
   ■ Edward Weiler, Director, NASA Goddard Space Flight Center

8:45 Keynote address
   ■ Michael Griffin, NASA Administrator

9:30 Break

9:45 Perspectives on the 50th anniversary of NASA’s founding
   ■ Roger G. Launius, Chair, Division of Space History, National Air & Space Museum, Smithsonian Institution

10:15 Reflections on Humans Working in Space
   ■ William H. Gerstenmaier, Associate Administrator for Space Operations, NASA Headquarters

10:45 Sustaining a Human Presence in Space
   ■ Richard J. Gilbrech, Associate Administrator for Exploration Systems, NASA Headquarters

11:15 The International Role in Expanding Human Presence in Space
   ■ Lon Rains, Editor, Space News

11:45 Luncheon
   ■ Rep. Steny Hoyer, House Majority Leader, D-MD.

1:15 The Unknown History of the Vision for Space Exploration (VSE)
   ■ Stephen J. Garber, History Division, NASA Headquarters

1:45 Prizes and Emerging Markets: Encouraging Commercial Space Capabilities
   ■ Ken Davidian, Commercial Development Policy Lead, NASA Headquarters

2:15 Break

2:30 A Ticket to Ride: An Emerging Space Adventure Industry
   Moderator: Clayton Mowry, President, Arianespace, Inc.
   Panelists:
   ■ Bretton Alexander, Executive Director, X PRIZE Foundation
   ■ George Whitesides, Executive Director, National Space Society
   ■ George Nield, Deputy Associate Administrator for Commercial Space Transportation, FAA
   ■ Francesca Schroeder, Principal, Fish & Richardson, PC.

3:30 Spaceports and Commercial Space Launches
   Moderator: John Campbell, Director, Wallops Flight Facility and Suborbital and Special Orbital Projects Directorate, NASA GSFC
   Panelists:
   ■ Michael C. Gass, President, United Launch Alliance invited
   ■ Billie Reed, Executive Director, Virginia Commercial Space Flight Authority
   ■ Neil Millburn, Vice President, Federal Liaison and Program Manager, Armadillo Aerospace

5:00 Reception

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**THURSDAY, MARCH 6**

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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>7:30</td>
<td>Registration opens / continental breakfast</td>
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<tr>
<td>8:30</td>
<td><strong>Keynote address</strong></td>
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<td></td>
<td>Alan Stern, Associate Administrator for Science, NASA Headquarters</td>
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<td>9:15</td>
<td><strong>Earth Science from Space</strong></td>
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<td>Conrad C. Lautenbacher, Undersecretary of Commerce for Oceans and Atmosphere (NOAA Administrator) invited</td>
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<td>9:45</td>
<td><strong>Investing in Technology to Enable Future Science Missions in Space</strong></td>
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<td></td>
<td>Laurie A. Leshin, Deputy Director for Science and Technology, NASA GSFC</td>
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<td>10:15</td>
<td>Break</td>
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<tr>
<td>10:30</td>
<td><strong>Faces for the Future</strong></td>
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<td>Alexis Livanos, Corporate Vice President and President, Northrop Grumman Space Technology</td>
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<td>11:15</td>
<td><strong>Moon Science</strong></td>
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<td>David E. Smith, Deputy Director for Planetary Science, Solar System Exploration Division, NASA GSFC</td>
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<td>11:45</td>
<td><strong>Luncheon</strong></td>
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<td>Senator Barbara Mikulski, D-MD</td>
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<td>11:45</td>
<td><strong>Summer Jobs: Hubble Servicing Mission</strong></td>
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<td>Frank Cepollina, Manager, Hubble Space Telescope Development Project, NASA GSFC</td>
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<td>14:45</td>
<td><strong>Space Weather: Survival of People and Robots</strong></td>
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<td></td>
<td>Louis Lanzerotti, Distinguished Research Professor, Center for Solar-Terrestrial Research, New Jersey Institute of Technology</td>
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<td>15:15</td>
<td>Break</td>
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<td>15:30</td>
<td><strong>Mars on the Horizon</strong></td>
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<td>James B. Garvin, Chief Scientist, NASA GSFC</td>
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<td>16:00</td>
<td><strong>Before Earth and Beyond Mars: Planetary Science</strong></td>
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<td>Jonathan Lunine, Professor, Lunar and Planetary Laboratory, The University of Arizona</td>
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<td>16:30</td>
<td><strong>Astrophysics Beyond 2020: the Big Questions</strong></td>
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<td>Mario Livio, Head, Office of Public Outreach, Space Telescope Science Institute</td>
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<td>17:00</td>
<td><strong>NASA at 50: Oh, Say Can You See?</strong></td>
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<td>Wesley T. Huntress, Director, Geophysical Laboratory, Carnegie Institution of Washington</td>
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<td>17:30</td>
<td><strong>Closing Remarks</strong></td>
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<td>Frank Slazer, AAS President</td>
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<td>18:00</td>
<td><strong>Reception Celebrating NASA's 50th Anniversary</strong></td>
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<td></td>
<td>Alan Stern, Associate Administrator for Science, NASA Headquarters</td>
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**FULL REGISTRATION:** Includes all sessions, continental breakfasts, break, refreshments, two luncheons and three receptions.

**Cost:**
- AAS Member - $360 ($310 with discount)
- Non-member / Renewing Member - $445 ($395 with discount)
- U.S. Government / Academia - $285 ($235 with discount)
- One-Day Registration - $220

**SPECIAL REGISTRATION:** Includes all sessions, continental breakfasts, break refreshments and three receptions (luncheon tickets may be purchased separately).

**Cost:**
- Student (full-time) / Teacher (K-12) - $30
- Retired (over 65 & not employed full-time) - $75
- Press (with credentials) - No Charge
## Calendar

### 2008

**Feb. 20 – June 12**

**Ask an Expert Lecture Series**
Smithsonian National Air and Space Museum, Washington, D.C.
[www.nasm.si.edu/events/lectures/askanexpert.cfm](http://www.nasm.si.edu/events/lectures/askanexpert.cfm)

**At the National Mall Building**

**Feb. 20**
“Mars Up Close and Personal: HiRISE Views,” by John Grant

**Mar. 19**
“Space Shuttle Commander: Pam Melroy,” Women’s Heritage Month, by Valerie Neal

**Mar. 26**
“Apollo 13, a Slide Rule and an Ill-fated Trip to the Moon,” by Paul Ceruzzi

**Apr. 23**
“Mars,” by Bob Craddock

**At the Steven F. Udvar-Hazy Center**

**Mar. 13**
“Vanguard 1,” by Paul Ceruzzi

**Apr. 10**
“Turning Spaceflight into Collectibles: Soviet Space Pins,” by Cathleen Lewis

**May 8**
“Space Toys That Your Mother Would Hate,” by Margaret Weitekamp

**Jun. 12**
“Lost: Survival Gear for an Emergency that Never Happened,” by Allan Needell

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**February 20-22**

**ISU’s 12th Annual Symposium**
Space Solutions to Earth’s Global Challenges
International Space University Central Campus
Strasbourg, France

[www.isunet.edu](http://www.isunet.edu)

**February 26-28**

**3rd Space Exploration Conference and Exhibit**
50 Years of Space Exploration: Taking the Next Giant Leap
Colorado Convention Center, Denver, Colo.

[www.aiaa.org/events/exploration](http://www.aiaa.org/events/exploration)

**March 5-6**

**46th Robert H. Goddard Memorial Symposium**
Greenbelt Marriott Hotel, Greenbelt, Md.

[www.astronautical.org](http://www.astronautical.org)

**March 10-14**

**39th Lunar and Planetary Science Conference**
South Shore Harbour Resort and Conference Center, League City, Texas

[www.lpi.usra.edu/meetings/lpsc2008](http://www.lpi.usra.edu/meetings/lpsc2008)
What are your specific interests in space history?

A better question might be “What about space history doesn’t interest you?” My interest is as infinite as space itself. Having worked since April 1985 at Air Force Space Command headquarters, however, my focus has been on U.S. military space activities ranging from R&D and acquisition of systems to launch and on-orbit operations.

I have studied and written extensively about Air Force involvement with many types of launch vehicles (e.g., Atlas, Titan, Thor-Delta, and Scout), upper stages (e.g., Agena, Centaur, and IUS), space-based applications (e.g., communication, early-warning, meteorological, navigational, surveillance, and reconnaissance), ground-based sensors for space surveillance (e.g., Baker-Nunn and GEODSS cameras, plus various mechanical and phased-array radar systems) and communication networks for command and control (C2) of military space systems. I also have kept up on policy, doctrine and organizational changes related to military space.

To keep my non-military space knowledge up to date, I read extensively and regularly review a wide variety of books on space history for several different journals. I also attend the annual AAS conferences, where I take careful notes from which to prepare reports for Space Times.

What are you currently working on related to space history?

I recently completed a series of e-mail Q&A

Continued on next page ➤

That first artificial earth-circling spacecraft set humankind on a new course and, on a personal level, directly influenced my educational path for a decade.
exchanges with Roger L. Easton, Sr., who played key roles in designing or directing Naval Research Laboratory programs from the mid-1950s into the 1980s (e.g., the Vanguard satellite, the Minitrack system, the Naval Space Surveillance System, and Timation/NTS satellites that led to the Global Positioning System); our e-mail exchanges will appear as an “interview” in High Frontier: The Journal of Space & Missile Professionals published quarterly by Air Force Space Command.

I am co-authoring with Gregory Orndorff, from Johns Hopkins University’s Applied Physics Laboratory, a chapter titled “Space and the Cold War” for a forthcoming book titled “Handbook of Space Engineering, Archaeology and Heritage.” I am also revising my earlier study on GPS applications for a chapter in a forthcoming book titled “Down to Earth.”

Although I submitted to ABC-CLIO several months ago the “Military Applications” section of the forthcoming historical encyclopedia titled Space Exploration and Humanity, recent events have compelled me to begin writing additional articles (e.g., Wideband Global SATCOM system and U.S. Experimental Military Satellites).

I have undertaken two book-length projects: editing the manuscript autobiography of rocket engineer Robert C. Truax, who is now 91 years old; and writing a history of the U.S. Space Detection and Tracking System.

As a member of the AAS History Committee’s subcommittee for selecting the 2007 Emme Astronautical Literature Award, I am preparing to read and critique a substantial number of recently published histories on space-related topics.

How did you get interested in space history?

As a youngster, I built various kinds of powered model airplanes. In my junior- and senior-high school years, I was in accelerated math and science classes. Like many other youngsters who grew up in the early Cold War years, I was encouraged by school counselors to pursue a career in science or engineering. Also, I was fascinated by published stories of Dyna-Soar and the X-15, and television coverage of the Mercury flights enthralled me.

Consequently, I went to Iowa State University thinking I was destined to become an aerospace engineer. Somewhere along the line, however, I discovered history was my true calling. It took a couple decades before that calling and the field of space studies merged for me. To shorten a much longer story, after earning my doctorate, I heard about applied-history positions with the Air Force. Having decided that I wanted, ultimately, to live near other family members in Colorado, I became an Air Force civilian historian in 1984 and moved to the recently established Space Command in April 1985. The Air Force paid me to be interested in space history, and that was the beginning of the rest of my story.

What are your favorite space-related books, movies and Web sites?

As far as non-fiction books are concerned, two come readily to mind: Walter McDougall’s “The Heavens and the Earth” and Paul Stares’ “The Militarization of Space.” Both have proven to contain enduring insights.

On the fictional (or perhaps not so fictional) side, I found “Space Wars: The First Six Hours of World War III” by Michael Coumatos and a couple other authors intriguing. My favorite space-related movie is “October Sky,” but Ron Howard’s “Apollo 13” and Stanley Kubrick’s “2001: A Space Odyssey” ranks high on my list. I also love some of the early 1950s sci-fi films such as “Rocketship X-M,” “Destination Moon,” “Conquest of Space,” “The Day the Earth Stood Still” and “War of the Worlds.”

When it comes to Web sites, I probably refer most often to the various NASA and Encyclopedia Astronautica links, but the Russian Space Web and Global Security sites come in very handy for research purposes.

Besides the first piloted lunar landing, what do you think was the most memorable moment in space history and why?

I shall always remember the
first lunar landing, because I was a VISTA volunteer on my way to a remote Eskimo village in western Alaska. We were in Anchorage for a few days before flying to our respective assignments, and we sat in the hotel lobby watching the television coverage thanks to the first ever international broadcast via satellite to Alaska. Next to that spectacular experience, I best recall the space shuttle Challenger disaster, because it was my birthday. Listening to the car radio on my way to work, I heard the terrible news. That event still haunts me every time my birthday roles around. Although I was only ten years old when the Russians launched Sputnik, its aftermath certainly was memorable. That first artificial earth-circling spacecraft set humankind on a new course and, on a personal level, directly influenced my educational path for a decade.

What else would you like to share with us?

They way my early technical interest in aerospace and my professional training as a historian eventually came together to promote an exciting, productive career that is now in its 22nd year continues to fascinate me almost daily. It exemplifies the value of advice I have given to many students over the years: keep your options and your horizons wide open, because you never know where life’s twists and turns will lead you. My work is fun, and that’s not something many people can say.

Once we have completed our review of the remaining articles in this area (in about a month), we will know the remaining schedule with much greater certainty. Knock on wood.

I offer the following quote in closing to acknowledge the sustained effort, support and commitment provided by the many people who have been involved in this effort:

“Few things are impossible to diligence and skill. Great works are performed not by strength, but perseverance.”

— Samuel Johnson (1709 - 1784)

For more information about the encyclopedia, see the product fact sheet at ABC-CLIO’s Web site.
The latest volume in the AAS History Series includes proceedings of the 33rd History Symposium of the International Academy of Astronautics (IAA) held in Amsterdam, The Netherlands, in 1999. Papers presented in the book are listed below:

Dr. Irene Sänger-Bredt: A Life for Astronautics, by Nicole Florin Zaganesuc, George Popa, Rodica Zaganescu and Lucia Popa.

John Leland Atwood: Biographical Memoir, by Shirley Thomas

Liquid Propellant Engines in the Soviet Union, by Christian Lardier

The True Beginnings of French Astronautics, 1938-1959 (Part 1), by Philippe Jung

Evolution of Asphalt Rocket Propellants from World War II JPL/Aerojet Research to Postwar Spin-Offs by the Rocket Research Institute, by George S. James, Charles J. Piper III, Frank H. Winter and John Bluth

The Shusui Japanese Rocket Fighter in World War II, by Yasunori Matogawa


History of French Sounding Rockets

Part I: Véronique and Vesta—Their Development and Operation, by Christophe Rothmund, Hervé Moulin, J. J. Serra and Jean Louis Lafon

The Netherlands in Space: How it all Began, by Henk Olthof and Jan H. De Koomen

Flight Termination of the First Large Solid Propellant Rockets, by Julius H. Braun

Black Prince, by Douglas Millard

The Question of the Artificial Satellite in the Mid-1950s: French Scientists and Their Approach, by Hervé Moulin

History of Commercial Satellite Services Industry, by Linda Williams, Max Engel and Hans ten Cate


The First French Experiences of Space Biology During Parabolic Flights, by Alexandre-Claude Timsit, Gérard Chatelier and Hervé Moulin

A Little-Known Project of a Super-Heavy Space Rocket, S. N. Konyukhov, by O. I. Drobakhin and V. A. Pashchenko

Scientific Experiences Using Argentinean Sounding Rockets in Antarctica, by Miguel Sánchez-Peña

Recovering Rockets from the Desert: Exercises in Retrieving Australia’s Space Heritage from the Simpson Desert, by Roger Henwood and Kerrie Dougherty

On the Connectivity Between the French and Hamiltonian Approaches to Celestial Mechanics, by Peter M. Bainum

Apollo 30th Anniversary: Two Views—Part 1: Was the Apollo Program a “Dead End?”, by Marsha Freeman

Apollo 30th Anniversary: Two Views—Part 2: Project Apollo in American Memory and Myth, by Roger D. Launius
A 50% discount off list prices for all AAS History Series volumes is available for individual members of the:
- American Astronautical Society History Committee
- International Academy of Astronautics History Study Group
- Authors for books in which their articles appear

A 25% discount off list prices for all AAS History Series volumes is available for individual members of the AAS, AIAA, AAAF and:
- The British Interplanetary Society
- The Deutsche Gesellschaft für Luft und Raumfahrt
- The National Space Society
- The Space Studies Institute
- The U.S. Space Foundation
- The Planetary Society
- Individual members of any IAF Society may take the same discount.

The AAS History Committee, first under the leadership of Eugene M. Emme, NASA historian, established the AAS History Series of books in 1977 to dedicate the continued pursuit and broader appreciation of the full history of flight in American history and its global influence.

PREVIOUS VOLUMES

Vol. 8  History of Rocketry and Astronautics, 1989, 368p, Hard $50; Soft $35.
Vol. 11  History of Rocketry and Astronautics, 1994, 236p, Hard $60; Soft $40.
Vol. 18  Organizing for the Use of Space: Historical Perspectives on a Persistent Issue, 1995, 234p, Hard $60; Soft $40.
Vol. 21  History of Rocketry and Astronautics, 1997, 368p, Hard $60; Soft $40.
Vol. 23  History of Rocketry and Astronautics, 2001, 560p, Hard $85; Soft $60.
Vol. 26  History of Rocketry and Astronautics, 2005, 430p, Hard $95; Soft $70.
Vol. 27  History of Rocketry and Astronautics, 2007, 416p, Hard $95; Soft $70.

For more information about the AAS History Series, visit Univelt’s Web site.
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Looking back

Unique moments in the history of rocketry and astronautics

First glimpse of Earth from space

By Gideon Marcus

Explorer 6 returned the first picture of the Earth from space on its first day in orbit, August 7, 1959. The satellite carried the battery of instruments never properly tested on the preceding Pioneer missions. One in particular was the Space Technology Laboratories-developed television camera. This lightweight device made up in weight savings what it lacked in performance, offering only one Hertz bandwidth and requiring 64 seconds to scan one .5-degree-wide line.

The spacecraft only knew to turn on its camera when it caught the brightness of the Earth. This satellite had no inertial guidance, so each strip of scanned Earth was uncoordinated with the next. The whole picture needed to be assembled line by line by STL.

No one was very happy with this camera. At a conference in Washington, a man from Goddard stood up and shouted, “This is all a fake!” at Charles Sonett, who was in charge of the Explorer’s instrument package. Sonett calmly replied, “No, it’s not a fake, but it’s pretty limited.”

Still, this was at a time when American space victories were precious commodities, and STL had come through again.

Gideon Marcus has written about the first U.S. satellite missions, covering the period from 1957-1960, in the journal Quest: The History of Spaceflight Quarterly.
Kenneth Samuel Kleinknecht, a pioneer of aerospace engineering for NASA and manager of the Mercury Project, died Nov. 20 in Colorado. He was 88.

Throughout his career, Kleinknecht was promoted to leadership positions in each of NASA’s piloted spaceflight programs.

Kleinknecht started his career in 1942 at the Aircraft Engine Research Laboratory (Lewis Research Center) in Cleveland, Ohio, after graduating from Purdue University with a degree in mechanical engineering. In 1951, Kleinknecht took a job at the High Speed Flight Research Station at Edwards Air Force Base in Muroc, Calif. After NASA formed, he was employed by the Space Task Group at the Langley Research Center in Hampton, Va.

Before being named manager of the Mercury Project, Kleinknecht was active in the National Air Races, served as supervisor for a number of avionics tests and was director of the Project Engineering Station for the X-1E.

Kleinknecht served as the advanced projects management officer on the X-15 project and as the technical assistant to the director of the Manned Spacecraft Center (Johnson Spacecraft Center).

He was the deputy manager of the Gemini Program Office from 1963-67 and manager of the command and service modules within the Apollo Spacecraft Program Office from 1967-70. Kleinknecht was manager of the Skylab Program Office from 1970-74 and the assistant manager of the Space Shuttle Orbiter Project Office from 1976-77.

He left NASA in 1981 to work for Martin Marietta Aerospace and Lockheed Martin Astronautics in Denver, Colo., where he was a top-level manager and senior adviser for space transportation systems. He retired in 1990.

In 1998 and 2000, Kleinknecht was interviewed as part of the Johnson Space Center Oral History Project where he discussed his career at NASA and the pressures involved with running high-risk programs such as Mercury and Gemini during the height of the space race of the 1960s.

“No, I never thought about the difficulties. I thought about how can we get it done. It certainly was a challenge, but I think technologically this country can do everything it sets its mind to do, if it has the resolve,” he said. “... when you look back, we’ve all been together all the time. We just didn’t know how close together we were. But everybody — the industry, contractors, universities, and NASA centers — all pitched in.”
On the horizon

What the History Committee has in the works for its next newsletter

Inside the classroom

Many universities offer courses that focus on the history of spaceflight. The History Committee will publish a list of these schools and the approach taught in these classes.