



NEWS & NOTES

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FROM THE CHIEF HISTORIAN



What a summer that was! There was such intense interest in the Apollo 11 50th anniversary, and such a flood of publications, articles, websites, podcasts, and events, that I'm still trying to wrap my arms around it. I know that I'll never be able to see it all, but I hope not to miss something new and significant. Once you have gotten over your Apollo 11 hangover, I encourage you to go back and take a look at what is available online. There are some incredible stories (including some coverage of people whose stories you have likely never heard), and there are some amazing new methods of "seeing" the Apollo 11 story. (Check out your favorite app store and video sites.) If you see something amazing, let us know, and we'll share your recommendations in a future issue of *News and Notes*.

Why will we still be talking about the Apollo 50th anniversary in a future issue? Because we have a lot more Apollo 50th anniversaries to celebrate between now and December 2022 (the anniversary of our most recent human expedition to the Moon—so far). In fact, we've got the anniversary of the Apollo 12 mission coming up in mid-November. This is a mission that didn't get the attention it deserved. It was a bit anticlimactic after Apollo 11 and, sadly, a mission that lost live TV coverage of its two Moonwalks when the camera was damaged.

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LESSONS IN DESIGN, CONTROL, AND TEENAGERS: REVAMPING THE NASA HISTORY WEBSITE

By Robyn Rodgers, Chief Archivist

It is 6:10 on a Wednesday night, and I am sitting on the Virginia Railway Express (VRE) heading home to Fredericksburg. The ride from DC is about an hour and 40 minutes, providing that everything is going well. Yeah, I know, but it could be worse; I could be sitting in traffic on 95. VRE is a commuter train whose Fredericksburg line runs from Spotsylvania, Virginia, to Union Station in DC. That 100-minute ride with other commuters leaves me a while to see what people are doing with their time. Some people knit, talk quietly with friends, or just watch the scenery go by. There are always a few oddities; I am quite certain that one woman is brewing beer in her bag, and another man keeps a stuffed armadillo in his briefcase. Not a toy armadillo—a taxidermy armadillo. There are just questions that are better not to ask. Those people aside, many of us work, read, play games, and watch movies, and it is very easy to see on their faces what they like and what frustrates them. As a world, our media consumption is

continued on page 3

IN THIS ISSUE:

- 1** From the Chief Historian
- 1** Lessons in Design, Control, and Teenagers: Revamping the NASA History Website
- 6** News from Headquarters and the Centers
- 14** From Apollo to Africa: The Mobile Quarantine Facility's Mission to Contain Lassa Fever
- 18** NASA White Sands Test Facility Apollo Command and Service Module Revitalization Project
- 20** Weathering the Storms
- 22** Other Aerospace History News
- 24** Upcoming Meetings
- 25** Recent Publication from the NASA History Division
- 25** Recent Publications
- 29** In Memoriam



From the Chief Historian (continued)



Pictured is the prime crew of the Apollo 12 lunar landing mission. Left to right are Charles Conrad, Jr.; Richard F. Gordon, Jr.; and Alan L. Bean. (Photo credit: NASA)

Apollo 12 not only featured one of the most colorful crews in exploration history, but it also made history with the first pinpoint landing on the Moon. That precision landing allowed Pete Conrad and Alan Bean to be the first, and still only, humans to visit a robotic precursor (Surveyor 3) on an extraterrestrial body. You can expect more coverage from the History Program this fall on Apollo 12, and we'll also be preparing to mark another famous Apollo mission anniversary next spring.

All of these 50-year anniversaries continue to remind me that the calendar moves with inexorable speed. This summer, we had the opportunity not only to celebrate space exploration achievements, but also to mark the passage of a number of important lives in our community. As the Apollo 11 anniversary was wrapping up, we lost one of the legends of that era, Christopher Kraft. A native of what is now Hampton, Virginia, Kraft started work at the National Advisory Committee for

Aeronautics (NACA) Langley Memorial Aeronautical Laboratory in January 1945, and for the next 37 years, he applied his tremendous drive and plainspoken manner to an incredible number of challenges for the NACA and NASA. He invented Mission Control as we now know it, and his leadership throughout his life had a major impact on our future in space. I recommend that you read the tribute to him on the NASA site (<https://www.nasa.gov/chris-kraft>). Unfortunately, you won't see major public accolades online for two other notable NASA people who passed away this summer. As we went to press for the last issue, we learned about

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the death of our former Chief Archivist, Jane Odom. Less than three weeks later, another member of the NASA history family, Gail Langevin, also succumbed to cancer. Gail had served as the history point of contact for Langley Research Center as an additional duty, but from our perspective, she carried the weight of historical and archival efforts at our oldest Center until her retirement in 2017. There is a tribute to both of these amazing contributors inside this edition. We will miss them both and mourn with their families for lives cut too short.

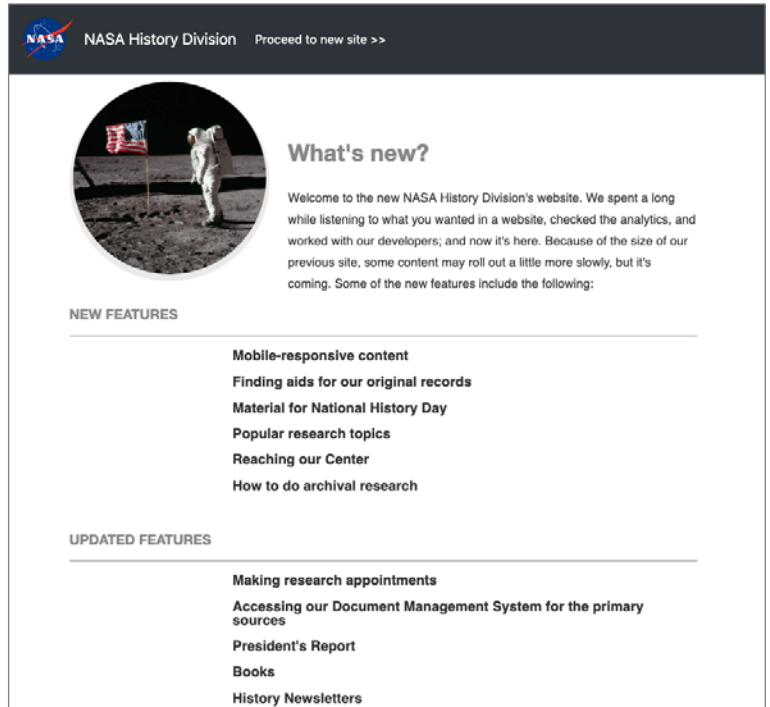
Godspeed,

William P. Barry
Chief Historian

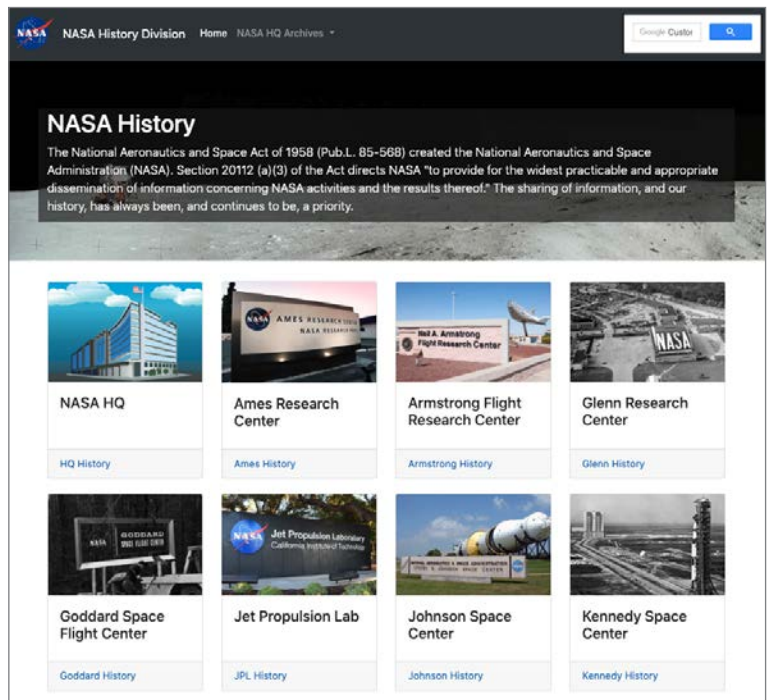
Lessons in Design, Control, and Teenagers: Revamping the NASA History Website (continued)

enormous, and until the Rise of the Machines, that is not going to change. That is why it was vital that the NASA History website get revamped when it did. The Apollo 11 anniversary was bearing down on us, putting the NASA History Division in the world's eye, and it was important that our web presence reflect our rich heritage. Part of good project management is not just to write a "Lessons Learned" document but also to share it. When Cat Baldwin, our editor extraordinaire, asked me to submit an article for the newsletter, it made that part easy. There were three things that the experience left me strongly believing that I should share with others: 1) it is going to take more time than you think; 2) your web project is not the development team's only project, even if it is yours; and 3) find a teenager somewhere.

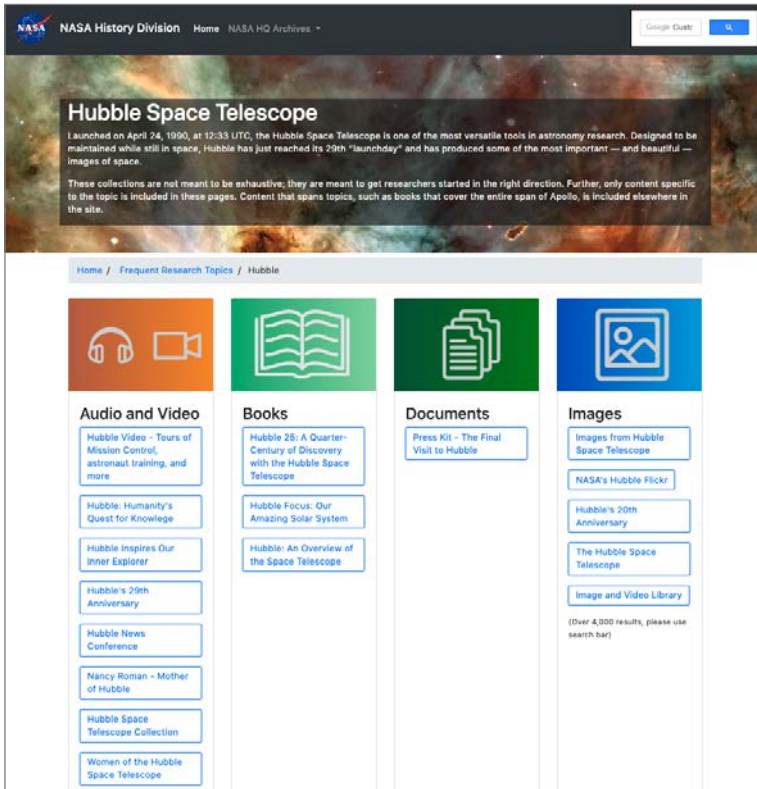
In yesteryear, it was very easy to get a website up. You learned to write code, bought a box of Pop Tarts and a half-rack of Mountain Dew, and, at about 4 a.m., wound up with some sort of web presence. If you were really good, you had a site with stable nested hyperlinks, some imagery, and a counter on the bottom that tracked page visits. There was not a lot of planning that had to go into it because websites were static information pushers. Dynamic content and analytics had not been born yet, and certainly no such thing as a user population study. Many of us in middle to senior leadership were around to see the very beginnings of the internet. Because we are NASA, some of us even helped to create it, which is why NASA was one of the very first government agencies to have a web presence at all. About 15 years ago, the NASA History Division got its very first site. It was filled to the gills with information and was certainly a great resource. However, the way that people use the web has changed, and Bill Barry was kind enough to let me take on the task of updating the site. In the past, planning a website was a task for the owning body; the developer, who wore multiple hats; and the budget office. Now, the team may consist of the owning body, development team, budget office, stakeholder units, user experience teams, server team, beta testers, and social media team, among others.



The NASA History website has been online for 15 years, but this summer it underwent a revitalization.



The histories of NASA's Centers are organized alphabetically for easy access on <https://history.nasa.gov/>.



A website visitor can browse through common research topics, such as the Hubble Space Telescope.

The larger the team, the more diverse the professional opinions that must be reconciled against the final product. That takes time, especially since the site in question is only one of several competing priorities for the teams. Normally, an overhaul like ours would take at least six months to plan and another two for testing and implementation. Because I have some web experience, we walked into the first meeting with most of the content mapped and a defined end goal in sight. The developer, Garrett Shea, a designer at the NASA Headquarters Communications Support Services Center (CSSC), and I clicked right away, which is important. I brought in enough for him to see my vision and gave him the latitude to bring his talent, experience, and education. Even with that great working synergy that we have, it still took three weeks longer than planned. Garrett and I had some long hours because we were doing things like server tracking and refreshes, which happen best when traffic is lowest. We ran into significant server issues, some of which we knew were going to happen and others

that were a surprise. Also, we agreed immediately that there was going to be a History 2.0 push at the end of August because we had to make choices about time or content. It is okay to not be 100 percent complete as long as you have a defined and measurable plan to make up the gap.

Lessons learned: Do as much pre-work as possible. It is going to take longer than you think, and much of that is out of your control. Create your follow-on plan before your first push. This may be a good time to learn yogic breathing.

Because the development team and I spent many hours together, I learned a lot about how they work. If you are going to take on a web project, know what you are asking for. The more you know what your required end state is, the easier it is for them to help you get there. If you do not know, be honest about that and release some of the control to them. Bring examples of things you do like and things that you know you do not. It helps them find commonalities. There is nothing more frustrating than this conversation: “I don’t know what I want, but I know that’s not it. Go do something else.” “Okay. Tell me more about what you’re thinking?” “I don’t know, but not that.” Your web project is not their only project, and because many of them are contractors, they have a very different set of metrics and processes of which we are not aware. The better plan you have walking in the door, and the better you connect with the team, the better the entire process is going to be for everyone. Building a website in today’s environment is complicated. It is not a thing that can be built in a night, dumped

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on a server, and pushed out—despite what that nifty YouTube ad tells you. There are reasons that the profession has developed and split the way it has. User experience teams do not do the same thing as the server team, and so on. They’ve split into their own industries because technology and best practices have required them to do

so. It is a complex process, blending art, science, and technology, and while the owning shop may be paying the bill, we are not the only entity on the team.

Lesson learned: Respect the team. The more professional respect we give and the better plan we walk in with, the better the entire process is going to be for everyone.

When you are deeply entrenched in a project, especially one you are spearheading, it all makes intrinsic sense to you. You know why this is here or how that decision came about. However, in looking from the outside in, those things may not be apparent. A website is the most “outside-in” thing a government office can have. It exists to do exactly that, to allow the public a window into what that office is doing with their taxpayer dollars. They *want* to be able to use that site. Part of the early planning process needs to be dedicated to figuring out how they are using it, as well as how you want people to use it; in this case, those were different things. There are both internal and external ways to do that. A user experience test usually happens with professionals, and beta test is usually an internal process. Feedback, however, is open. The best way to make sure that things make sense to someone who is not you is to ask someone else who does not have a stake in the product or the process. Once we went live, the most useful feedback came from my 20-year-old and a group of friends’ teenagers. They are all digital natives, born with phones in their hands. They have



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expectations and are very good at explaining why something did not work without delving into how they thought you should fix it (an issue with other testers). Because they were all high school seniors through middle college years, they are accustomed to doing research online. They also provided great feedback as they switched between

Android, Apple, and Chromebook. Moreover, their lack of investment in the project gives them room to be open and honest without worrying about looking foolish or damaging relationships that may be needed down the road. I also found that they didn’t have an angle or an agenda; they simply tested and gave feedback, which is exactly what was needed.

Lesson learned: Hire a teenager while they still know everything.

The process is not over and will remain ongoing. As part of the planning process, we created a predictable model of updating that would allow the team to know what and when updates would be coming. That update process has to be built and agreed upon in order to ensure that the website stays relevant, clean, and functional. That in itself could be a lesson learned, too, but I chose not to include it because we are still in the process of making sure that it works as intended. Not only was this an amazing learning experience, it was an excellent reminder that no matter how carefully we plan, we can’t always control a timeline, and that starting in a place of clearly stated professional respect for others helps ensure that the project moves far more smoothly. These are things that people know, but it never hurts to have a reminder. Making use of teenagers while they still know everything turned out to be not just a bumper sticker, but also a valid method of data collection that I will use again when it becomes appropriate, a lesson that I was grateful to learn.

NEWS FROM HEADQUARTERS AND THE CENTERS

NASA HEADQUARTERS

Washington, DC

By Bill Barry

Wow—what a summer that was! I am so incredibly proud of the work done by the History team here at NASA Headquarters for the Apollo 11 anniversary. Everyone pulled together to answer countless questions from the media and the public and to help with a variety of anniversary events, all while keeping the wheels on the bus rolling along. The archival team not only came up with amazing answers, but (in what I think is a first) they hosted a *Washington Post* reporter on about 30 minutes' notice for an article that was being researched on deadline. Based on the level of media interest in talking with us, it is pretty clear that people now know that the NASA History Program is a place where you can get answers and insight that are hard to find elsewhere.

By the way, we not only kept the wheels on the bus this summer, but we were busy changing them without stopping. Before I get too wrapped up in this metaphor, let me explain. I'm talking about the public debut of the new <http://history.nasa.gov> site on 18 July. This project was the brainchild of our brilliant Chief Archivist, Robyn Rodgers. Robyn not only redesigned the site, but did the coding to create it. When we brought Robyn's code to our printing and design folks in the Communications Support Services Center (CSSC) for cleanup and testing, you could almost see the eye-rolls as they anticipated a huge mess that they would be stuck cleaning up. But their tune changed immediately once they started working with Robyn's draft site. Garrett Shea, graphic designer and website guru in CSSC, was able to get the site ready for prime time in about six weeks. After some intense testing in the first weeks of July, Robyn and Garrett said that the site was ready. Rolling out a new History website during the middle of the Apollo 11 anniversary week may not have seemed like a very prudent idea, but the huge improvements in the site (especially

its new mobile friendliness) and its robustness showed immediately. Traffic on the site spiked after it went live on 18 July and continued to be heavy throughout the Moon landing anniversary weekend. We continue to add functionality and content to the site. So if you haven't visited lately, go take a look.

With the Apollo 11 anniversary over, we've jumped into our deferred work on the Mission Support Future Architecture Program (MAP). As noted in our last newsletter, MAP is an Agency-wide effort to improve NASA support functions, and the Communications function of the Agency was moved up to this year's MAP cycle on short notice this spring. This meant that the structure of history and archival efforts everywhere at NASA had to be sorted out during the busiest summer we've had in a decade (at least). The Communications MAP team agreed to deal with history in "phase 2," and that gave us some breathing space. But phase 2 starts next fiscal year—i.e., on 1 October. So we are now busy providing data to the MAP team so that they can understand the issues and the complexities that the program faces. Some sort of change will be coming for our history and archival programs in the next six months. All we can say at this point is, stand by and we'll let you know as soon as we can.

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SOME SORT OF CHANGE WILL BE COMING FOR OUR HISTORY AND ARCHIVAL PROGRAMS IN THE NEXT SIX MONTHS. ALL WE CAN SAY AT THIS POINT IS, STAND BY AND WE'LL LET YOU KNOW AS SOON AS WE CAN.

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I always used to look forward to the end of summer and the start of the school year (yes, I'm that kind of geek), but my enthusiasm for fall has been tempered since becoming Chief Historian. The main reason for my changing attitude? The need to say goodbye to our amazing summer interns every August. This year, Claire Smrt left in early August to return to her junior year as a journalism major at the University of Missouri. Later in the month, Gwendolyn Rak left to start her sophomore year as a history and physics double major at Swarthmore. Both of them showed tremendous creativity and incredible stamina during a very busy summer. Their enthusiasm and positive energy, even after a brutally hot day staffing the Apollo anniversary booth on the National Mall, was an inspiration to the rest of us. This fall, we'll have a pair of no less enthusiastic interns. Andrew Parco, a senior at George Washington University, has already joined us, and David Skogerboe, a graduate student at Utrecht University, will start in early October. We are looking forward to another great fall semester.

Forthcoming NASA History Division Publications Update

By Steve Garber

Dick Hallion has done a terrific job editing the proceedings of the NACA centennial symposium jointly held by NASA and the National Air and Space Museum (NASM). This manuscript is almost ready to begin production and should be a major contribution to this often-overlooked aspect of aerospace history.

Erik Conway, Don Yeomans, and Meg Rosenberg's history of NASA's Near-Earth Object (NEO) research and policy, sponsored by NASA's Planetary Defense Coordination Office, is through the initial draft, and the authors are busy revising the manuscript after peer review. The work of this team of excellent historians and a renowned technical subject matter expert should make a significant contribution to historical understanding of a contemporary topic.

Also in revisions after peer review is Chris Gainor's operational history of the Hubble Space Telescope (HST). Look for this fine complement to Robert Smith's development history of HST to be published next year.

Another NACA manuscript we're very pleased to be moving forward toward publication is a collected work on World War II and aeronautical technology that is being edited by Alex Spencer, a NASM curator. This strong collection of essays is almost ready for peer review.

Another symposium proceedings manuscript that is well under way is one regarding the history of robotic exploration of our solar system. Edited by Linda Billings, this collected work contains a range of interesting, thoughtful essays and is almost ready for production.

Emily Cook recently completed a first draft of a history of NASA's Stennis Space Center (SSC). This carefully researched and well-written manuscript should serve as an excellent follow-on to Mack Herring's *Way Station to Space*, with a focus on both the technical details of rocket propulsion testing and the social and economic impact that SSC has had on the local area.

AMES RESEARCH CENTER (ARC)

Moffett Field, California

By James Anderson and April Gage

A week after our History Program Review and right in the middle of the Apollo 50th anniversary activities, the new Ames historian, James Anderson, arrived at the Center. James and archivist April Gage supported an Apollo meet-and-greet organized by the Ames Office of Communications and held in a conference room at Moffett Field. Through the Owl Feather Society and other contact lists, Apollo-era Ames veterans attended the event to reconnect with colleagues, share their stories with current staff, and take an active role in our Apollo retrospective.

On 16 May, nine of these Ames veterans sat for interviews and scheduled time to return individually to have portraits taken. James coordinated the portrait sessions and took advantage of the opportunity to talk at some length with the retired researchers. Those portraits were released as a series called *Faces of Apollo* (found at <https://www.nasa.gov/ames/faces-of-apollo>). Some of the veterans brought related documents, photos, and artifacts that are going into the archives. Included was a Saturn V wind tunnel model that Henry A. “Hank” Cole, Jr., had kept in his garage over the years. The fiberglass-and-aluminum model was built in an Ames machine shop and tested in the 11-by 11-foot tunnel to determine how the addition of a ring to the base of the escape rocket would affect the buffeting experienced. The answer was adversely, so the addition of the ring was canceled. Another notable contribution was a small collection of some papers and photos from Caye Johnson, a biologist who worked in the Life Detection Branch and was part of the team at

Ames that looked for microbial life in the Apollo 11 samples in the Ames Lunar Biological Laboratory.

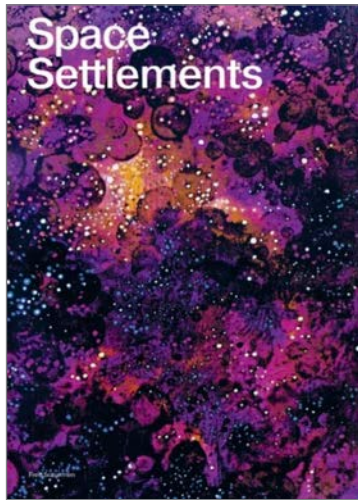
The Ames Lunar Biological Laboratory became a focal point of the Ames retrospective, as the timing was just right to highlight some recently rediscovered archival footage. A 16-millimeter film produced for NASA by the Lockheed Missiles and Space Company documented the work at the Lunar Biological Laboratory as the researchers looked for signs of life in the lunar samples. The 19-minute film from 1969 had been digitized in 2013, but the transfer quality was poor and did not capture the full resolution and color of the print. The Ames video group sent the footage to Johnson Space Center (JSC), which did an amazing job capturing the full color and high resolution in the transfer that we now have.

With the generous participation of Caye Johnson, James collaborated with Kimberly Ennico Smith, an Ames astrophysicist on detail in the Office of Communications, to produce an online piece about the lab (available at <https://www.nasa.gov/ames/lunar-biology-lab>). Caye described the lab and her role in its operation. Audio of her commentary provided the narration for a short video that James edited from the original 19-minute film, and Kimberly took the lead writing the accompanying text. The story was picked up by outlets including CNN (<https://www.cnn.com/2019/07/16/world/apollo-11-moon-samples-scnrnd/index.html>) and Fox News (<https://www.foxnews.com/science/apollo-11-never-before-seen-video-signs-of-life>). The full 19-minute film is available online, linked at the bottom of the Lunar Biological Lab posting, along with a photo gallery of the lab.

Living in Los Angeles provided a fleeting moment of convenience for James, as he was able to deliver a talk and participate in a panel discussion at an Apollo event hosted by the American Institute of Aeronautics and Astronautics (AIAA) at the Santa Monica Public Library on 13 July. The talk highlighted some of the Ames contributions to Apollo in the context of NASA’s current work focused on a return to the Moon. Back up in the Bay Area, the traffic was not much better for



Caye Johnson works in a lab. (Photo credit: NASA/Zabower)



Space Settlements
cover. (Image credit:
Fred Scharmen)

April, who traveled to San Francisco and spoke about the interplay of art and science over the centuries as part of a space art panel for an Apollo anniversary event, “To the Moon and Beyond,” which was a collaboration of the Consulate General of Switzerland’s Swiss Touch campaign in partnership with the San Francisco Exploratorium and Ames. Preceding the space art panel was a panel about the future of space research, featuring Kimberly Ennico Smith and ARC’s Center Director, Eugene Tu. Swiss astronaut Claude Nicollier delivered the keynote address at the event.

We would also like to give a shout-out to our researcher, Fred Scharmen, whose book *Space Settlements* was just published by Columbia University Press. The book examines the space settlement design studies conducted at Ames in the 1970s and considers them as serious architectural proposals for living in space. Works from the History Archives collections featured in the book are currently on exhibition at the San Francisco Museum of Modern Art.

In the midst of Apollo-palooza, routine work still progressed. The archives supported a June 2019 10th anniversary celebration of the Lunar Crater Observation and Sensing Satellite (LCROSS) mission with historical materials from the archives at an event on campus. And the Artifacts Working Group (AWG) benefited from a breakout session that April, James, and archivist Danielle Lopez held with the goal of

simplifying the identification of potential artifacts for people (even other AWG members) who are not already familiar with the programmatic definitions and policies. Because so many folks at the Center handle potential artifacts and are involved with decisions about their use and disposition, a draft cheat sheet came out of the breakout session that was shared at the most recent meeting of the working group. It was positively received, and plans to raise awareness through info sessions for branch chiefs and a Center-wide announcement are on an upcoming agenda.

ARMSTRONG FLIGHT RESEARCH CENTER (AFRC)

Edwards Air Force Base, California

By Christian Gelzer

In conjunction with Taschen Books’ release of *NASA Archives: 60 Years in Space*, Christian Gelzer was invited to participate in a discussion with author and photographer Lawrence Schiller. Taschen Books also recently re-released Norman Mailer’s *Moonfire* with splendid imagery. Both speakers were hosted by Taschen managing editor Nina Wiener at a cultural center in Hollywood before an audience, with an after-talk gathering during which attendees could ask additional questions.

Christian gave two talks in conjunction with the Apollo 50th anniversary. The first, on the Lunar Landing Research/Training Vehicle, coincided with the Center’s celebration of the lunar landing itself. The second talk was to the Air Force and was a reevaluation of Neil Armstrong’s “long flight” that took him to the fringes of Pasadena before he managed to get the X-15 headed back to Edwards Air Force Base (AFB). Over time, Armstrong has become the culprit in the story. However, Gelzer’s research suggests that “a victim of circumstances” is more apt description. The term “normalization of deviance” is modern by X-15 standards, but it certainly applied to some aspects of that program, one of which directly affected Armstrong’s situational awareness.

GLENN RESEARCH CENTER (GRC)

Cleveland, Ohio

By Anne Mills and Bob Arrighi (ATS)

The Glenn History Office is pleased to share its newest online resource, an addition to our suite of historic facilities sites: the history of the Cyclotron Facility. The website can be found here: <https://www1.grc.nasa.gov/historic-facilities/cyclotron/>.

The cyclotron was designed in the late 1940s to facilitate research on the impact of radiation on materials for a planned nuclear-powered aircraft. After persevering through numerous technical difficulties, the cyclotron became fully operational in 1957. Completion coincided with the transition of the NACA into NASA, and with the shift in Agency priorities came a new research focus. The facility, now used for space applications, investigated solar cell degradation and radiation's effect on liquid hydrogen as a fuel. In the early 1970s, improvements to the facility expanded its capabilities, but the sudden cancellation of the Agency's nuclear program resulted in the courting of external customers to keep the facility operational. Perhaps most notably was the Cleveland Clinic's use of the cyclotron for its experimental neutron-therapy cancer treatments, a program that ran from the mid-1970s until 1990. At that time, the cyclotron was permanently shut down and placed into a mothballed safe mode. In the early 2000s, steps were taken to begin the cleanup and decommissioning process. The demolition of the facility was completed in June 2019.

JOHNSON SPACE CENTER (JSC)

Houston, Texas

By John Uri

Much of the JSC History Office's time and efforts over the past three months focused on the 50th anniversary of the Apollo 11 Moon landing, but we also continued

our regular activities. Apollo 11 activities included addressing media requests, giving talks, and still responding to requests for historical data. The busy time is now behind us, and we look forward to a little quieter time until the next expected round of attention surrounding the 50th anniversary of Apollo 13.

JSC Historian Jennifer Ross-Nazzal gave a number of presentations in July about the Apollo anniversary. On the 50th anniversary of the Apollo 11 launch, she addressed a large crowd at Space Center Houston, talking about launch day from the perspective of the Apollo 11 wives, the media, launch control, flight control, VIPs, and the public. After participating in lunar communion at the Webster Presbyterian Church, she spoke about the legacy of Apollo from the pulpit. The Presbyterian Church of the United States of America (PC[USA]) posted three articles on their website about the church's link to the space program and the historic mission.¹ The included videos credit the JSC History Office.

This summer, Sandra Johnson and Jennifer Ross-Nazzal traveled to Kerrville, Texas, to conduct oral history interviews with wives of former astronauts and flight controllers. They also had the opportunity to interview Ardis Shanks, the artist of the Skylab II wives' patch. At the Apollo 11 50th Anniversary Tribute in the city's Cailloux Theater, Jennifer and Sandra publicized the JSC Oral History Project. Presenters at the event included Apollo 13 astronaut Fred Haise; Skylab and Space Shuttle astronaut Jack Lousma; Flight Director and former JSC Center Director Gerry Griffin; Tom Moser and Norm Chaffee, both formerly of the Engineering Directorate; and flight controller and former Space Station Program Manager Tommy Holloway.

The JSC History Office responded to several media requests surrounding the 50th anniversary of the first Moon landing. JSC's *Houston We Have a Podcast*

¹ See <https://www.usatoday.com/story/news/nation/2019/07/19/apollo-11-moon-landing-what-you-cant-see-buzz-aldrin-flag-photo/1570334001/>, <https://www.pcusa.org/news/2019/7/22/fifty-years-after-apollo-11-texas-church-still-com/>, and <https://www.pcusa.org/news/2019/7/29/god-and-science-there-room-both/>.

(<https://www.nasa.gov/johnson/HWHAP/lesser-known-stories-of-apollo-11>) invited Jennifer as a guest for a record-tying third time to talk about the historic Apollo 11 mission. Jennifer participated in interviews with the *Washington Post* and CNN. Jennifer and John Uri participated in interviews with the Austin-based Texas Public Radio program *The Texas Standard* (<https://www.texasstandard.org/highway-to-the-moon-apollo1>) and *USA Today* (<https://www.usatoday.com/story/news/nation/2019/07/19/apollo-11-moon-landing-what-you-cant-see-buzz-aldrin-flag-photo/1570334001/>).

Over the past year or more, Sandra responded to numerous requests for oral history audio and video clips from filmmakers, producers, and authors working on projects related to the Apollo anniversary. The projects have now been published and Sandra received well-deserved recognition for her efforts. Space does not permit listing them all, but two examples will illustrate the point. The British Broadcasting Corporation's (BBC's) 12-part podcast/radio series *13 Minutes to the Moon* (<https://www.bbc.co.uk/programmes/w13xttx2>) is now online. The show's producer thanked Sandra for "so kindly providing...JSC Oral History interview clips" and pointed out that the source of the audio clips is noted in the end credits, urging listeners to visit the oral history website (https://historycollection.jsc.nasa.gov/JSCHistoryPortal/history/oral_histories/oral_histories.htm) for more detailed information. Nancy Atkinson, author of the book *Eight Years to the Moon—The History of the Apollo Mission*, published in July 2019, recognized Sandra's "invaluable assistance" in the acknowledgments section.

In recognition of significant space anniversaries leading up to the Moon landing, the JSC History Office continues to work with the JSC External Relations Office on a series of articles posted on <https://www.nasa.gov/topics/history/index.html> and JSC's Facebook and Twitter accounts. Abstracts of the articles appear online in JSC's *Roundup Today*. The features often highlight the anniversaries of less-celebrated events and people that were nevertheless crucial to achieving the Moon landing within President Kennedy's



Jennifer Ross-Nazzal speaks at Webster Presbyterian Church. (Photo credit: Clif Grim)



John and Jennifer are interviewed by *Texas Standard* editor David Brown (right). (Photo credit: *Texas Standard*)

timetable. Select pieces have also appeared as feature articles on the JSC Home Page's "Roundup Reads." We would like to thank history and archive personnel at other NASA Centers for their valued help and contributions to many of these products.

We continue to expand our extensive oral history collection. JSC Deputy Director Vanessa Wyche sat with



In attendance at a going-away luncheon for UHCL archivist Lauren Meyers (seated) were (standing, left to right) Greg Blackburn (NAL), Mark Scroggins, John Uri, Jennifer Ross-Nazzal, Ken Young (NAL), and Hal Beck (NAL). (Photo credit: John Uri)

Sandra and Jennifer for her first interview in May, and JSC Center Director Mark Geyer sat for his annual interview in June. Sandra and Jennifer have made initial contacts with former Vice President Dan Quayle’s assistant to arrange for an oral history with him. A similar arrangement with former Vice President Al Gore is also under consideration.

Unfortunately, we must report that Lauren Meyers has resigned as the archivist at the University of Houston–Clear Lake (UHCL) as part of her move to Austin, Texas. We will miss her. Regina Grant (past UHCL archives assistant) has come out of retirement to work part-time while UHCL goes through the process of hiring another permanent archivist. On 14 June, several members of the JSC Chapter of the NASA Alumni League (NAL) joined JSC archivist Mark Scroggins and JSC History Office members Jennifer and John for a going-away lunch, presenting Lauren with a signed NASA photo collage.

To preserve a bit of Space Shuttle history, Sandra successfully secured and coordinated the transfer of 11 boxes from former JSC engineer and thermodynamicist

Dorothy “Dottie” Lee, who was instrumental in the design of the Space Shuttle’s nose. Her daughters were cleaning out her house and offered the boxes to JSC. The boxes were received by JSC archivist Mark Scroggins and are stored in his facility. Our summer intern Sharyn Bristol has catalogued the boxes and created a detailed spreadsheet of their contents.

The History Office continues its effort to publish Jennifer’s book *Making Space for Women*, in collaboration with the JSC University Research, Collaboration and Partnership Office. The manuscript is currently undergoing peer review at Texas A&M University Press.

As a reminder, the JSC History Portal recently migrated to a new web address (<https://historycollection.jsc.nasa.gov/JSCHistoryPortal/history/>). It appears that issues encountered after the transition have now been corrected. We encourage everyone to update their bookmarks to the new URL and ask for your help in advertising the new address. Also, please inform us if you run into any issues with the new site so that we may address them expeditiously. We are continuing efforts to upgrade the look and feel of the History Portal, which will provide the History Office with easier control over content updates and provide users with a more modern format.

MARSHALL SPACE FLIGHT CENTER (MSFC)

Huntsville, Alabama

By Brian Odom

The recent Apollo 11 50th anniversary offered an excellent opportunity to explore the history of that monumental achievement while engaging the public. Working in conjunction with our visitor’s center, the U.S. Space & Rocket Center, Marshall History participated in a number of engaging events including a Guinness World Record rocket launch and a “Dancing in the Streets” celebration in downtown Huntsville, which included a number of Apollo-related exhibits and was attended by more than 10,000 spectators.

One of the more interesting products developed for the anniversary was a series of interviews entitled *Marshall Remembers Apollo*. These interviews with 20 of the men and women who worked at Marshall during the Saturn program cover topics ranging from engine testing to the impact of the Apollo program on Huntsville. These interviews are available on the Marshall History YouTube page at https://www.youtube.com/playlist?list=PLBEXDPatoWBmbilwH2r_mJh4de3Q6dSff.

In the archival world, Jordan Whetstone has been busy fielding reference questions and supporting Apollo anniversary products, all while continuing to process archival collections in the History Office. Considerable attention was given to developing projects to connect the public to the artwork produced during the Apollo era. One of these projects was an exhibit developed in conjunction with Arts Huntsville and the U.S. Space & Rocket Center. Similar to an exhibit hosted three years ago, this display of NASA artwork is centered on the 50th anniversary of the launch of Apollo 11. Many of the pieces in the display were by former *Los Angeles Times* artist Russ Arasmith. A link to his Apollo art gallery can be found here: <https://www.nasa.gov/centers/marshall/history/arasmith.html>.

In June, Brian Odom gave a talk at the Alabama Department of Archives and History (ADAH) entitled “Alabama and the Moon Landing.” This talk focused



Russ Arasmith Apollo artwork. (Image credit: NASA/Russ Arasmith)

on the larger context of the space program in Alabama, including federal development in the Tennessee Valley, German immigration and training, the Cold War, and the civil rights movement—forces that have all left a dramatic imprint on the region’s economy, politics, and larger society. The talk is available on the ADAH YouTube page at <https://www.youtube.com/user/AlabamaArchives>.

Another notable project was the development of a radio documentary with WLRH Public Radio (Huntsville), *One Giant Leap: Integration at NASA*. This documentary surveyed the integration of Marshall Space Flight Center during the decade of Apollo. Included in this documentary were interviews with Dr. Margrit von Braun, Joyce Neighbors, Jeanette Scissum, Dr. Ravindra Lal, Arthur Hullett, Dr. Bill Barry, and *Chasing the Moon* filmmaker Robert Stone. The documentary can be downloaded from the WLRH website here: <https://wlrh.org/WritersCorner/public-radio-hour-one-giant-leap-integration-nasa-72519>.

In November, the University Press of Florida will publish an anthology entitled *NASA and the Long Civil Rights Movement*. This collection of essays, edited by Brian Odom and Stephen Waring, emanated from a March 2017 symposium considering the intersection of NASA with the long civil rights movement—a framework developed by Jacquelyn Dowd Hall in her influential 2005 essay, “The Long Civil Rights Movement and the Political Uses of the Past.” There, Hall called on historians of the movement to place their histories within the broader context—a move she argued would make that history “harder to simplify, appropriate, and contain.” The essays in the volume explore the historical context surrounding issues such as the development of equal employment opportunity, the impact of NASA installations on the process of desegregation, and the creation of diversity in the astronaut corps. A few examples of the topics covered include the Poor People’s Campaign, the selection of Guion Bluford for the astronaut corps, and the closure of the satellite tracking station at Hartebeesthoek, South Africa.

FROM APOLLO TO AFRICA: THE MOBILE QUARANTINE FACILITY'S MISSION TO CONTAIN LASSA FEVER

By: Gwendolyn Rak, Summer 2019 Intern

After a long trip, the first thing most people want to do is go home and rest. But when the astronauts of Apollo 11, 12, and 14 each completed the 240,000-mile return trip to Earth, they were not allowed to go home for three weeks. Instead, they spent that time stuck in quarantine. These were humanity's first trips to the surface of the Moon, so no one could be certain what was hidden in the lunar material the astronauts were bringing back. From the moment

their Command Modules splashed down, any potential back-contamination was contained in specially designed facilities in order to protect the public from any threats that may be hiding in the Moon dust. The Lunar Receiving Laboratory was set up in Houston to quarantine the crew and anyone who interacted with them after splashdown, but the crew needed another temporary home for the trip there.



Workers load the Mobile Quarantine Facility aboard a transport plane at Hickam Air Force Base. (Photo credit: NASA)

That facility, known as the Mobile Quarantine Facility (MQF), was a converted 35-foot Airstream trailer specially designed to transport the astronauts across the Pacific and back to Texas. The trailer was made of an airtight, sealed aluminum body with a ventilation system that provided negative pressure in the cabin. All air vented out of the MQF went through a filter capable of 99 percent efficiency in removing particles 0.45 microns or larger, while all other waste was contained in holding tanks. To allow for the removal of samples and film without leaking potentially infected air out, it was also outfitted with a transfer lock system. Inside its airtight shell, the MQF was similar to any other mobile home; it had a lounge, galley, sleeping quarters, bathroom, and even a microwave. The design checked all the necessary boxes, so at the recommendation of an Interagency Committee on Back Contamination, four MQFs were commissioned from MelPar, Inc., for the Apollo program.¹

After three missions on the lunar surface, the NASA scientists came to learn that this was—thankfully—an unnecessary precaution. As many expected, the barren Moon did not harbor any contagions and the astronauts brought back no dangerous lunar microorganisms. After a three-week period of observation, the astronauts were released and went on with their lives. From that point, one might expect that the astronauts' airtight ride was then put out of commission and directly into storage. It turns out that there was more to the story than that.



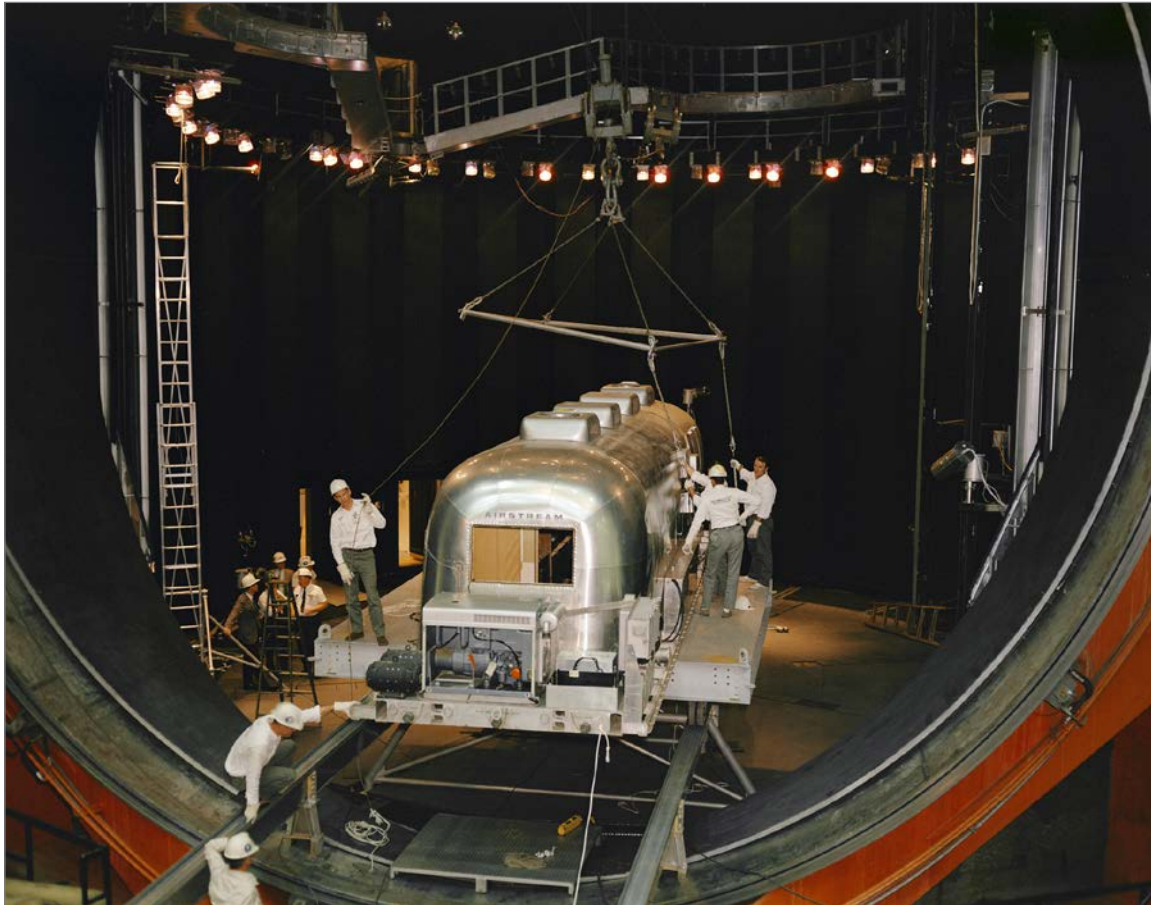
The Apollo 11 astronauts inside the Mobile Quarantine Facility aboard the USS Hornet speak with President Richard Nixon. (Photo credit: NASA)

While NASA's scientists were concerned with the potential biological dangers of the Moon, doctors halfway across the globe were working to combat another mounting threat in West Africa. In the early 1970s, a disease called Lassa fever spread through Sierra Leone and Nigeria. The animal-borne virus was first discovered in 1969 when two missionary nurses in Lassa, Nigeria, contracted it. Little was known about the disease except that it was highly contagious and often fatal.

Lassa fever still accounts for an estimated 10–16 percent of patients admitted to some Sierra Leonean hospitals today, but doctors can now effectively treat the disease.² In the 1970s, however, there was no reliable

1 Michael Meltzer, *When Biospheres Collide* (Washington, DC: NASA SP-2011-4234, 2011), p. 208.

2 "Lassa Fever," Centers for Disease Control and Prevention, 31 January 2019, <https://www.cdc.gov/vhfl/lassa/index.html> (accessed August 19, 2019).



The MQF is shown installed in Chamber A of the Space Environment Simulation Laboratory (SESL). (Photo credit: NASA)

cure available. Thus, the World Health Organization (WHO) reported in 1974 that “quarantine is at present the only effective means of reducing the risk of person-to-person transmission of Lassa fever virus.”³ The best solution to prevent further spreading of the disease was at that point the same method used to prevent the Apollo astronauts from spreading lunar contaminants. With the Apollo 14 quarantine over in February 1971, we had the means available to safely transport any infected patients—sitting idle, available for a new mission.

Accordingly, the four Apollo MQFs were loaned to the United States Air Force in 1972 when NASA was done with them. The intent was that, if an American Centers for Disease Control and Prevention (CDC) volunteer contracted Lassa fever, the Air Force would use the MQF to transport them back to the United States.⁴ The facility was designed to prevent contamination and equipped with all the necessary support systems to safely transport patients, so it was the perfect solution.

3 Thomas P. Monath, “Lassa Fever and Marburg Virus Disease,” *WHO Chronicle* 28 (1974): 212–219, <https://apps.who.int/iris/handle/10665/163802>.

4 Milton Reim, “MQF Loaned to USAF,” NASA Release no. 72-221, 21 November 1972.



The three Apollo 11 astronauts are transferred from a U.S. Navy helicopter to an MQF aboard the prime recovery vessel. (Photo credit: NASA)

This plan was first implemented when CDC epidemiologist Dr. Kent Campbell developed a high fever in 1972 while investigating the disease in Sierra Leone. He was flown back to New York in the MQF, although the illness was later found not to be Lassa fever, and he fully recovered.⁵ Two years later, in 1974, the MQF was put to use again, but not by the United States. The Air Force lent the facility to West Germany to transport a German doctor named Bernhard Mandrella home from Nigeria after he contracted Lassa fever.⁶ The doctor survived, and he greatly reduced the risk he posed of contaminating others by using the MQF.

There are no widely reported cases of the MQF being used beyond these instances, and history has shown that a Lassa fever epidemic did not spread outside of West Africa. However, the possibility of that became needlessly high at one point in 1976. When a Peace Corps volunteer in Sierra Leone contracted Lassa fever, she returned to the United States with no isolation procedures in place. During the trip, the woman exposed

522 people to the virus before being placed into quarantine. Twenty-nine of those contacts were identified as high-risk.⁷ Fortunately, the patient was not highly contagious and the virus did not spread, but the incident was just that: fortunate.

In each of these cases, both when the MQF was used and when it was not, the patients and those surrounding them were lucky. Hindsight may make it tempting to view the MQF as unnecessary, but when facing the unknown, an abundance of caution is appropriate. Imagine if the Apollo astronauts had in fact brought back harmful microorganisms; letting them return home without a period of quarantine would have been seen as negligent. Using the MQF to transport Lassa fever patients was similarly appropriate given the lack of knowledge doctors had about the disease. Scientists have since solved many of the Moon's mysteries and answered Lassa fever's questions, but they will surely encounter new unknowns in the future. Whether they come from space or right here on Earth, those unknowns should be addressed with the same caution.

Currently, three of the MQFs are on display at the Smithsonian's National Air and Space Museum Udvar-Hazy Center (Virginia), the Rocket Park at the U.S. Space & Rocket Center (Alabama), and the USS Hornet Sea, Air and Space Museum (California). The fourth MQF is still held by the United States Department of Agriculture (USDA).⁸

5 Lawrence K. Altman, "2 Die in Outbreak of Lassa Fever," *New York Times* (22 March 1974), available at <https://nyti.ms/1HjdK11> (accessed 9 September 2019).

6 "Space Capsule on Emergency Mission," *Washington Post* (21 March 1974).

7 Ronald M. Zweighaft, M.D., et al., "Lassa Fever: Response to an Imported Case," *New England Journal of Medicine* 297, no. 15 (13 October 1977): 803.

8 "History Spotlight: Airstream's Place in Space," Airstream, 15 July 2019, <https://www.airstream.com/blog/history-spotlight-airstreams-place-in-space/> (accessed 19 August 2019).

NASA WHITE SANDS TEST FACILITY APOLLO COMMAND AND SERVICE MODULE REVITALIZATION PROJECT

By Antonette Doherty, Project Manager, and Kyleigh Cox, NASA Safety and Mission Assurance (S&MA) Intern



Four months prior to the 50th anniversary of Apollo 11, the White Sands Test Facility's (WSTF's) Keystone Committee brought forward the idea to refurbish the Apollo Command and Service Module (CSM) replica as a morale campaign for WSTF personnel. The goal was to bring it back to its original state in honor of Project Apollo and all those who contributed from across Agency lines, including contributions from WSTF.

The CSM mockup is an important historical artifact that links WSTF to NASA's Apollo program. This artifact is a large part of WSTF history. The Apollo program is the reason WSTF was built in the first place. The white, cylindrical section of the Service Module was an early prototype used at WSTF for extensive ground tests of the 20,500-pound-thrust Service Propulsion Engine (SPE) during 1966–68. At the time, the SPE was the largest rocket engine fired at WSTF. These tests, along with those completed nearby at the White Sands Missile Range (WSMR), played an important role in preparing the propulsion, power, and navigation systems for the mission to the Moon.



The CSM Steering Committee poses in front of the refurbished Apollo Command and Service Module Replica.

Following the completion of those tests, the real engines and propellant tanks were removed and the structural shell was mounted onto a wood and Styrofoam skeleton. It was fitted with nonfunctional mockups of the Command Module (CM), Reaction Control System (RCS) quads, SPE nozzle, microwave antennas, and external umbilical connector. The CSM replica was relocated to the 100 Area between buildings 100 and 101 and situated on a concrete cradle.

Years of weathering and a lack of maintenance left the CSM neglected and deteriorated. Then the Keystone Committee pitched the refurbishment idea to WSTF management. The Keystone Committee was then directed to steer a committee of WSTF employee volunteers to revitalize the CSM. Thus, the Command Service Module Steering Committee was established.

The Command Service Module Steering Committee consists of the following members:

- Antonette Doherty, Project Manager, Environmental (NASA)
- Felicia Barela, HR (Jacobs)
- Tim Brooks, Facilities Engineering (Jacobs)
- Joe-Henry Armendariz, S&MA (NASA)
- Mike Hallock, S&MA (NASA)
- Nina Cardenas, S&MA (Science Applications International Corporation [SAIC])
- Carlos Martinez, Propulsion (Jacobs)
- Janne Lady, Propulsion (AWD)
- Jim Dawson, Information Technology (IT) (MEIT)
- Jack Cervoni, Technical Services/Fabrication Shop (Jacobs)
- Abbey Seward, Technical Services/Fabrication Shop (Jacobs)

The revitalization of the CSM mockup included repainting each section of the exterior; restoring the small thrusters, crew access hatches, umbilical



Before



After

connector, and rendezvous windows; creating a docking mechanism and deep space antenna; adding new decals; and patching up the tear in the thruster's netting. The committee also installed the final touches: solar-powered spotlights and a new 4- by 4-foot sign honoring WSTF.

In addition to the CSM Steering Committee members, this project could not have been accomplished without the hard work of the following:

- Sean Bender, Facilities Engineering (Jacobs)
- Danny De La Cruz, Facilities Engineering (Jacobs)
- Gary Sullivan, Facilities Engineering (Jacobs)
- Manny Saldivar, Technical Services/Fabrication Shop (GEO)



Before

After

- Anthony Trejo, Technical Services/Fabrication Shop (Jacobs)
- Jamie Puentes, Technical Services/Publications (Jacobs)

The CSM Steering Committee and facility volunteers are very proud of the work we have done in refurbishing the CSM. As we look to the future, we want to continue to remember the CSM's historical significance and the lasting legacy of Project Apollo.

WEATHERING THE STORMS

By Jessica B. Herr



Hurricane Katrina over the Gulf of Mexico. (Image credit: Jeff Schmaltz, MODIS Rapid Response Team, NASA/GSFC)

Hurricane season reaches its peak time in the months of August and September. During this time, the Gulf Coast is filled with reminders to be prepared. These warnings do not apply only to the residents of the Gulf Coast; Stennis Space Center (SSC) needs to be prepared as well. For years, Stennis has had a hurricane preparedness plan that has served the site well, helping it to survive hurricanes like Betsy in 1965, Camille in 1969, Elena in 1985, Georges in 1998, and Katrina in 2005.

The first test to the preparedness plan came with Hurricane Betsy. Betsy formed on 17 August 1965. Stennis, then known as the Mississippi Test Facility (MTF), tracked the storm as it approached the Gulf Coast. The storm made landfall near Grand Isle, Louisiana, on Friday, 10 September 1965. The test

facility sustained only minor damage when Betsy moved into the Mississippi coast area. MTF reopened the following Monday.

Hurricane Camille made landfall at Waveland, Mississippi, on 18 August 1969. At MTF, the days prior to Camille's arrival were spent watching, waiting, securing hydrogen and oxygen barges, and tying down anything that might be blown away in the 160-mile-per-hour winds. MTF and the surrounding area were ravaged by the storm, but the Gulf Coast, always resilient, quickly rebuilt.

Hurricane Elena was a tricky storm to prepare for; it had an unpredictable track, going east in the Gulf of Mexico, then doubling back to make landfall near Biloxi, Mississippi, on 2 September 1985. Hurricane warnings were issued, canceled, and issued again in the time leading up to the storm. The then-National Space Technology Laboratories (NSTL), formerly known as the Mississippi Test Facility and soon to be known as Stennis Space Center, remained ready throughout the uncertainty. Thanks to the efforts of "ride-out crews," the people who remain at the Center during a hurricane to keep it operational, there was little damage to the facility.

Throughout its existence, SSC has been integral to hurricane damage assessments. In October 1995, Hurricane Opal hit the Florida Panhandle. NASA's Gulf of Mexico Program, headquartered at SSC, helped to assess damage caused by the hurricane. The Gulf of Mexico Program was a multi-agency, multistate partnership in the Gulf region to develop and design a program to provide a comprehensive network for sharing Gulf of Mexico environmental information data. Flyovers of the hurricane-ravaged areas were done using remote sensing technology from NASA. Using a computer program developed at SSC—the Earth Resources Laboratory Applications Software (ELAS)—along with the remote sensing

data, scientists and technicians could process imagery data as well as topographic, soil, and rainfall data to produce resource management information.

Hurricane Georges was an unusual storm, making seven landfalls in all, with its seventh and final landfall on 28 September 1998, near Biloxi. Once again, Stennis Space Center was fully prepared and only had to rake up and haul off storm debris scattered across the site.

In 2005, Stennis again was as prepared as it could have been, but Hurricane Katrina was unlike anything else. It was the most brutal storm in decades, causing many

**“
THROUGHOUT ITS EXISTENCE,
SSC HAS BEEN INTEGRAL
TO HURRICANE DAMAGE
ASSESSMENTS.
”**

fatalities and billions of dollars in property damage. Even veterans of Hurricane Camille had never seen anything quite like it. On 29 August 2005, Katrina made landfall in southeast Louisiana. Like much of the Gulf Coast, Stennis and its surrounding communities experienced heavy damage. In fact, Stennis sheltered approximately 2,500 employees whose homes had been rendered uninhabitable or destroyed. However, due to the hard work of emergency and ride-out crews, Stennis quickly was able to get up and running after the storm. Help poured in from across the country and other NASA installations. The community, once again, pulled together to rebuild.



Stennis Space Center sustained damage from Hurricane Katrina in 2005. (Image credit: NASA)

OTHER AEROSPACE HISTORY NEWS

AMERICAN ASTRONAUTICAL SOCIETY (AAS) HISTORY COMMITTEE

By Michael Ciancone, Chair

2019 Ordway Award for Sustained Excellence in Spaceflight History

The Ordway Award is named in memory of Frederick I. Ordway III (1927–2014), human spaceflight advocate and chronicler of the history of rocketry and space travel. The award recognizes exceptional, sustained efforts to inform and educate on spaceflight and its history through one or more media, such as 1) writing, editing, or publishing; 2) preparation and/or presentation of exhibits; or 3) production for distribution through film, television, art, or other nonprint media. The award is managed by the Ordway Panel of the American Astronomical Society (AAS) History Committee. Members of the panel are Michael



Frederick I. Ordway III poses with an EVA pod on the set of the movie *2001: A Space Odyssey* circa 1966–67. (Image credit: National Air and Space Museum, NASM-9A12923)

Ciancone (chair), Robert Godwin, Valerie Neal, Ron Miller (2018 recipient), Miles O’Brien (2018 recipient), and Dennis Jenkins (2018 recipient).

The recipients of the 2019 Ordway Award are as follows:

- **Univelt** is recognized for sustained excellence in documenting space history through the production of AAS publications.
- **Dr. John M. Logsdon** is recognized for sustained excellence in space policy analysis.
- **John Noble Wilford** is recognized for sustained excellence in print journalism through his coverage of spaceflight activities.

CALL FOR PARTICIPANTS

55th Annual Walter Prescott Webb Lecture Series: “Flight Culture and the Human Experience”

16 and 17 April 2020

Hosted by the American Airlines CR Smith Museum and organized by the University of Texas at Arlington (UTA), the 55th Annual Webb Lecture Series, “Flight Culture and the Human Experience,” will feature new and emerging research into the myriad social, cultural, political, and other transformations that brought about the advent and expansion of aviation technologies. While many of the lectures will, necessarily, examine aspects of aeronautical history, the Department of History welcomes proposals from scholars and advanced “all but dissertation” (ABD) graduate students whose multidisciplinary and interdisciplinary research may assist the broader public in understanding the vital role that aviation has played in shaping humanity’s past, present, and possible futures.

For consideration, please submit via e-mail a single PDF file containing 1) a working title and brief (1- to 2-page) description of the proposed lecture and 2) a complete *curriculum vitae* to Karla Ramsey at kcramsey@uta.edu.

Submission deadline: 1 October 2019

For more information, please visit the Department's website at <http://www.uta.edu/history/research/webb-lecture-series/index.php> or contact

Dr. Scott W. Palmer
Professor and Chair
Department of History
University of Texas at Arlington
scott.palmer@uta.edu

ESSAY COMPETITION: "FLIGHT CULTURE AND THE HUMAN EXPERIENCE"

In conjunction with the 55th Annual Walter Prescott Webb Lecture Series, the UTA Department of History invites advanced graduate students (ABD) and early-career (pre-tenure) scholars to submit original, unpublished article-length essays (maximum 10,000 words, plus endnotes) on subjects relating to the myriad social, cultural, political, and other transformations that brought about the advent and expansion of aviation technologies.

Areas of investigation may include (but are not limited to) aviation and the built environment, literary and artistic representations of flight, milestones in aeronautical engineering, the development of civil and commercial aviation, military aviation and airpower doctrine, the influence of the airplane in popular culture, social identities and the aviation age, the origins and evolution of aerial technologies, "air-mindedness" and the nation state, and aviation in comparative international contexts (to name but a few).

A prize in the amount of \$500 will be awarded to the author of the winning entry during the 55th Annual Webb Lecture Series hosted by the American Airlines CR Smith Museum in Fort Worth, Texas (16 and 17 April 2020).

The winning entry will subsequently appear in an edited collection, to be published by Texas A&M University Press.

Deadline for submission: 15 January 2020

Essays should be submitted electronically to the Webb Lectures Coordinator, Julie Hazzard, at julie.hazzard@uta.edu.

For more information, contact Professor Scott W. Palmer at scott.palmer@uta.edu.

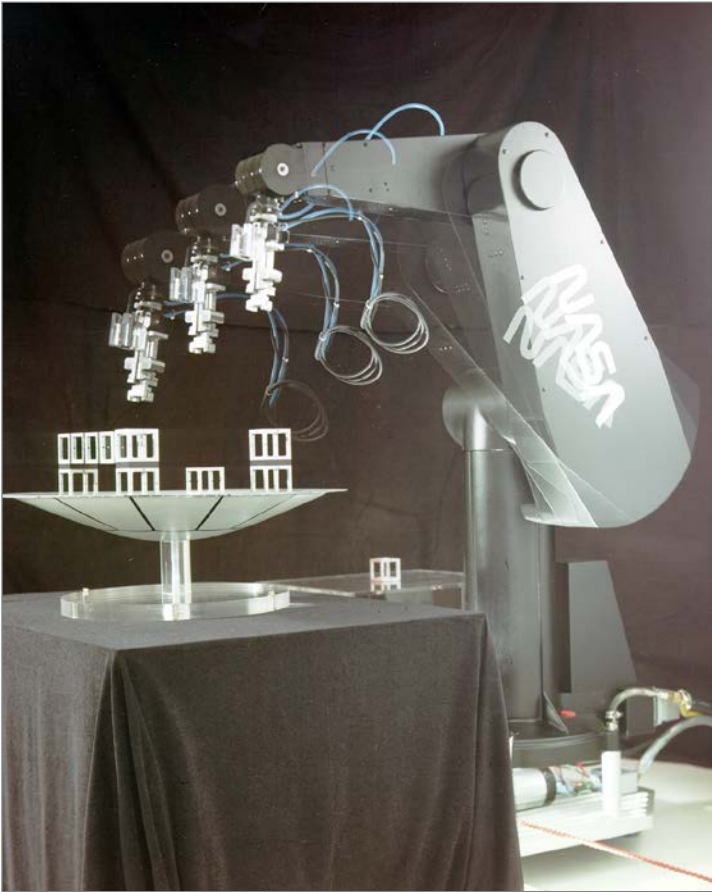
CALL FOR PAPERS**2019 Sacknoff Prize for Space History**

First awarded in 2011, the annual Sacknoff Prize for Space History is designed to encourage students to perform original research and submit papers with history-of-spaceflight themes. The contest is open to undergraduate and graduate students enrolled at an accredited college or university working toward a degree. The winner will receive

- a \$500 cash prize;
- publication in the peer-reviewed journal *Quest: The History of Spaceflight Quarterly*; and
- an invitation to present at the annual meeting for the Society for the History of Technology (SHOT), Albatross (Aerospace) Committee.

Submissions must be received by **26 November 2019**; the winners will be announced in December.

The manuscript (in Word or PDF format) should not exceed 10,000 words, should be written in English, and should emphasize in-depth research, with adequate citations of the sources utilized. Originality of ideas is important. Diagrams, graphs, images, or photographs may be included. The prize committee will include the editor of *Quest: The History of Spaceflight* and members of the SHOT Aerospace Committee.



This 1990 multiple-exposure image shows the Puma Robotic Sensor Arm in action. The robot was used in virtual-reality development and studies at NASA's Ames Research Center. (Image credit: NASA)

Although works must be historical in character, they can draw on other disciplines—such as cultural studies, literature, communications, economics, engineering, and science. Comparative or international studies of the history of spaceflight are encouraged. Possible subjects include, but are not limited to, historical aspects of space companies and their leaders; the social effects of spaceflight; space technology development; the space environment; space systems design, engineering, and safety; the regulation of space; and the financial and economic aspects of the space industry.

If you have any questions, please send us an e-mail at quest@spacehistory101.com.

The Sacknoff Prize for Space History
 P.O. Box 5752
 Bethesda, MD 20824-5752 USA
<https://www.spacehistory101.com/prize>
<http://www.spacecommerce.org/prize.pdf>

The Sacknoff Prize for Space History is sponsored by the Space 3.0 Foundation, a 501(c)(3) charitable organization that aims to preserve space history, empower entrepreneurs, and secure the future.

UPCOMING MEETINGS

The annual meeting of the Oral History Association will be held **16–20 October 2019** in Salt Lake City, Utah. Visit <https://www.oralhistory.org> for more details.

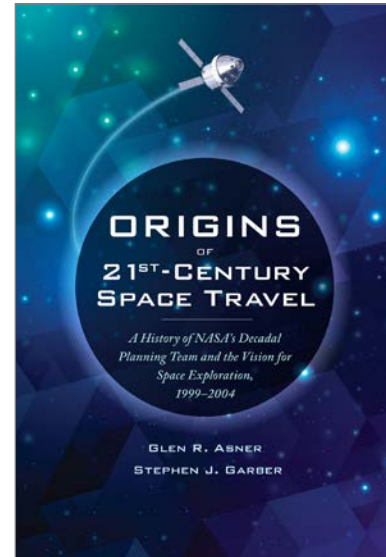
The International Astronautical Congress will meet **21–25 October 2019** in Washington, DC. Visit <https://www.iac2019.org> for more details.

The annual meeting of the Society for the History of Technology will be held **24–27 October 2019** in Milan, Italy. Visit <https://www.historyoftechnology.org/> for more details.

RECENT PUBLICATION FROM THE NASA HISTORY DIVISION

ORIGINS OF 21ST-CENTURY SPACE TRAVEL: A HISTORY OF NASA'S DECADAL PLANNING TEAM AND THE VISION FOR SPACE EXPLORATION, 1999–2004 BY GLEN R. ASNER AND STEPHEN J. GARBER

Less than one year after the Columbia Space Shuttle accident on 1 February 2003, President George W. Bush announced that the Agency would embark on a new Vision for Space Exploration as it resumed Shuttle flights and worked toward the completion of the International Space Station. The President's ambitious agenda included lunar and Martian exploration with robotic precursors followed by human missions. The conceptual foundations of the President's plan had their origins in 1999, when NASA Administrator Daniel Goldin initiated a Decadal Planning Team to generate viable plans for humans and robots to explore space beyond low-Earth orbit. This book provides a detailed historical account of the ideas, debates, and decisions that opened the way for a new generation of spaceflight at the start of the 21st century.



RECENT PUBLICATIONS

By Chris Gamble

Chris Gamble has compiled this publication list for the NASA History Division for many years. Now, after much work, he has decided that this will be his final list. The NASA History Division would like to take a moment to thank Chris for his contributions. We appreciate all the time and care Chris has put into this pursuit, especially as a volunteer. Thank you, Chris Gamble!

The Moon: NASA Images from Space, by Beth Alesse (Amherst Media, July 2019). Early images show the very first Apollo missions to the Moon using film in a Hasselblad camera. NASA illustrations explain the Moon's tidal forces, phases, geography, and composition. This book shows detailed maps of the Moon's surface: its incredible craters, ancient lava flows, plains, seas, and mountains.

Proposal for Man-in-Space (1957–1958), edited by Robert Godwin (CG Publishing, January 2019). After the launch of Sputnik, Air Force staff quickly put together a long-range plan for the exploration of space. This book includes the official Air Force history of these events, for many years classified as "SECRET." This book explains how many of these ideas ended up being adopted by NASA and led to the space race of the 1960s.

The Human Factor in a Mission to Mars: An Interdisciplinary Approach, edited by Konrad Szocik (Springer, March 2019). A crewed mission to Mars is faced with challenges and topics that may not be obvious but are of great importance and challenging for such a mission. This book collects contributions from scholars in various fields, from astronomy and medicine to theology and philosophy, addressing such



Apollo 11 countdown demonstration test. (Image credit: NASA)

topics. The discussion goes beyond medical and technological challenges of such a deep space mission. The focus is on the human nature, human emotions, and biases in such a new environment.

Apollo: A Graphic Guide to Mankind's Greatest Mission, by Zack Scott (Abrams Image, May 2019).

In his infographic-packed book, the author recounts the entire journey of the Apollo space program. Artful infographics throughout focus on a wide range of details that space-lovers will obsess over—astronaut weights, mission insignia, spacecraft call signs, fuel-consumption stats, splashdown sites around the world, and much, much more.

The Vinyl Frontier: The Story of the Voyager Golden Record, by Jonathan Scott (Bloomsbury Sigma, May 2019). The story behind the mission, music, and message of NASA's Voyager Golden Record—humanity's message to the stars. *The Vinyl Frontier* tells the whole story of how the record was created, from when NASA first proposed the idea to Carl Sagan to when

humankind was finally able watch the Golden Record rocket off into space on Voyager.

Apollo's Legacy: The Space Race in Perspective, by Roger D. Launius (Smithsonian Books, May 2019). The author examines whether the dominant story of the Apollo missions—one of American triumph, exceptionalism, and success—is an accurate portrayal. He explores the idea that it yielded extensive space technology advances; that the astronauts were heroes, celebrities, and even embodiments of American virtues; and that we gained an extensive knowledge of the Moon through the Apollo program.

Destined for the Stars: Faith, the Future, and America's Final Frontier, by Catherine L. Newell (University of Pittsburgh Press, May 2019). *Destined*

for the Stars argues that the success of the U.S. space program was not due to technological or economic superiority but was sustained by and shaped by the Manifest Destiny. Religious forces, Newell finds, were in no small way responsible for the crescendo of support for and interest in space exploration in the early 1950s.

Space Shuttle: A Photographic Journey 1981–2011, by Luke Wesley Price (Ammonite Press, May 2019). Commemorating 30 years of Space Shuttle exploration, this photography book curates NASA Space Shuttle images into one collection, arranged in thematic chapters ranging from launch pad through launch sequence, to the missions themselves and the dramatic conclusion of the return flight and landing.

The Apollo Chronicles: Engineering America's First Moon Missions, by Brandon R. Brown (Oxford University Press, June 2019). In this book, 50 years after the Moon landing, the author, himself the son of an Apollo engineer, revisits the men and women

who toiled behind the lights. He relays the defining 20th-century project from its roots, focusing on the engineers' work and personalities.

From Cave Man to Cave Martian—Living in Caves on the Earth, Moon and Mars, by Manfred “Dutch” von Ehrenfried (Springer-Praxis, April 2019). This book explores the practicality of using the existing sub-surface geology on the Moon and Mars for protection against radiation, thermal extremes, micrometeorites, and dust storms rather than building surface habitats at great expense at least for those first few missions.

Shattered Dreams: The Lost and Canceled Space Missions, by Colin Burgess (University of Nebraska Press, May 2019). *Shattered Dreams* delves into the personal stories and recollections of several men and women who were in line to fly a specific or future space mission but lost that opportunity due to personal reasons, mission cancellations, or tragedies.

Comet: Photographs from the Rosetta Space, by Jean-Pierre Bibring and Hanns Zischler (Thames & Hudson, Ltd., May 2019). Following a 10-year voyage and a journey spanning millions of kilometers through our solar system, *Comet* presents the story of the Rosetta space probe and its interstellar voyage to the comet Tchoury.

Apollo 11 50th Anniversary Edition, by Christopher Riley (J. H. Haynes & Co., Ltd., April 2019). This manual looks at the evolution and design of the mighty Saturn V rocket, the Command and Service Modules, and the Lunar Module. It describes the spacesuits worn by the crew and their special life-support and communications systems.

Space Dogs: The Story of the Celebrated Canine Cosmonauts, by Martin Parr (Laurence King Publishing, June 2019). This book tells the story of the space dogs, illustrated with photographer Martin Parr's vintage space-dog memorabilia. In a regime that eschewed celebrating individual achievement, these dogs became Soviet superstars, with a vast array of merchandise, books, and films in their honor.

Reaching for the Moon: A Short History of the Space Race, by Roger D. Launius (Yale University Press, June 2019). Beginning with the launch of Sputnik in October 1957 and closing with the end of the Apollo program in 1972, Launius examines how early space exploration blurred the lines between military and civilian activities and how key actions led to space firsts as well as crushing failures.

Carrying the Fire: An Astronaut's Journeys: 50th Anniversary Edition, by Michael Collins (Farrar, Straus and Giroux; anniversary edition, April 2019). In this book, Collins traces his development from his first flight experiences in the Air Force, through his days as a test pilot, to his Apollo 11 spacewalk, presenting an evocative picture of the joys of flight as well as a new perspective on time, light, and movement from someone who has seen the fragile Earth from the other side of the Moon.

Moondust: In Search of the Men Who Fell to Earth, by Andrew Smith (Harper Perennial; reprint edition, June 2019). Andrew Smith's *Moondust*, a panoramic telling of the story of 12 astronauts who peered into the void at the edge of deep space, has been reprinted for the Apollo 11 50th anniversary. Smith tracks down the surviving members of this elite group to find their answers to the question, “Where do you go after you've been to the Moon?”

Moonbound: A Graphic History of Apollo 11, by Jonathan Fetter-Vorm (Hill and Wang, June 2019). This book tells the story of the Moon and the men who went there first through the long history of the visionaries, stargazers, builders, and adventurers who sent Apollo 11 on its legendary voyage. *Moonbound* aims to capture the arc of the Space Age in a graphic history.

Escape from Earth: The Secret History of How We Reached Space, by Fraser MacDonald (PublicAffairs, June 2019). *Escape from Earth* tells the true story of Frank Malina, the “father of modern rocketry,” and his achievements—such as his design the first American rocket to reach space and the establishment of the Jet Propulsion Laboratory.

A European Space Policy: Past Consolidation, Present Challenges and Future Perspectives, edited by Thomas Hoerber and Sarah Lieberman (Routledge, May 2019). This book builds a bridge between current research in space policy and contemporary European political studies. It focuses on answering questions central to European studies and applying them to the burgeoning field of European Union (EU) space policy. The authors take an interdisciplinary approach, examining space policy in a range of areas, including foreign security, technology, transport, and internal market.

The Moon: A Celebration of Our Celestial Neighbour, by Royal Observatory Greenwich (Collins, June 2019). Edited by the exhibition's curators, Melanie Vandembrouck, Megan Barford, Louise Devoy, and Richard Dunn, this book illuminates how art and science meet in our profound connection with the Moon. It features authors from a variety of disciplines, including cultural historians, curators, a scientist, a poet, and a space law expert, among others.

Eight Years to the Moon: The Apollo 11 Mission, by Nancy Atkinson (Page Street Publishing, July 2019). In this book, personal stories of NASA engineers and Massachusetts Institute of Technology (MIT) computer experts are interwoven with the author's narrative to tell the story of Apollo 11. With firsthand accounts from Henry Pohl (director of engineering at Johnson Space Center), Glynn Lunney (Apollo flight director), and Frank Hughes (lead test engineer for the Apollo Command and Lunar Module simulators), this book is filled with stories from those involved and interviews with other Apollo experts.

Archaeology from Space: How the Future Shapes Our Past, by Sarah Parcak (Henry Holt and Co., July 2019). Dr. Sarah Parcak pioneers the young field of satellite archaeology, using futuristic tools to unlock secrets from the past and transform how discoveries are made. In *Archaeology from Space*, Sarah describes the field's evolution, major discoveries, and future potential.

Apollo's Muse: The Moon in the Age of Photography, by Mia Fineman and Beth Saunders (Metropolitan Museum of Art, July 2019). In celebration of the 50th anniversary of the Apollo 11 Moon landing, this volume surveys the role of photography in the scientific study and artistic interpretation of the Moon from the dawn of the medium to the present. This book also includes discussions of work created in response to the Moon landing by artists such as Nancy Graves, Aleksandra Mir, and Robert Rauschenberg.

Returning People to the Moon After Apollo—Will It Be Another Fifty Years?, by Pat Norris (Springer-Praxis, June 2019). This book assesses the technical legacy of the Apollo missions based on the 50 years of space developments since the program's end. The question "Why haven't there been more human missions to the Moon?" is explored through a multidisciplinary approach that weaves together technological and historical perspectives.

Where Once We Stood: Stories of the Apollo Astronauts Who Walked on the Moon, by Christopher Riley (Harbour Moon Publishing, July 2019). Combining a series of illustrations by artist Martin Impey with the words spoken by astronauts on the lunar surface, this book offers an insight into what it really felt like to live and work on another world.

Disclaimer: The History Division wishes to thank volunteer Chris Gamble, who compiled this section for us. Please note that the edited descriptions here have been derived by Chris from promotional material and do not represent an endorsement by NASA.

IN MEMORIAM

In July, the NASA History Division lost two beloved members of our community, Gail Langevin and Jane Odom. These two women shaped the History Division with their kindness, knowledge, and passion. The NASA family feels this loss deeply and will always treasure the wonderful stories of their time with us.

GAIL LANGEVIN

Gail Langevin passed away on 29 July 2019 at the age of 64 after a battle with cancer. Gail spent most of her career at NASA's Langley Research Center. She began as a technician in the Structures and Material Research Facility. Then she became a technical editor, and then finally she finished out her career as a historian and outreach and protocol coordinator. Gail is survived by loving family and friends and will be sorely missed.

Remembrance by Rob Wyman

Gail was one of the first people I met when I was hired by NASA Langley in 2011 to be the Center's news chief. She worked alongside our news team with the protocol and outreach team, but she made it very clear that her true passion was serving as the Center's history liaison.

She also made it very clear that she expected me to quickly get up to speed on our Center's rich history. By the end of my first week at NASA, she had loaded me up with just about every publication ever written about Langley, and within a week, she was quizzing me on topics ranging from our aeronautical research impacts from the early days of the NACA, to our role in the human spaceflight program, to how we became involved in Earth science, and so much more.

And of course, Gail was right...what's past is prologue. That knowledge not only added context to the work our Center was doing, but also helped me better understand the culture and behind-the-scenes thoughts and decisions that were being made about current-day projects and priorities.



Gail and Jane dip their toes in the Pacific Ocean at sunset near the Santa Monica Pier in 2007. (Photo credit: Elaine Liston)



Gail Langevin. (Photo credit: Rob Wyman)

Her knowledge was put to the test during Langley's centennial in 2017. Originally planning to retire in early 2017, Gail postponed her retirement to ensure that she could play an active role in the final editing and fact-checking of all of our flagship products. And thank goodness she did. From our documentary film script to the beautiful coffee-table photo book, nothing went out the door without Gail's approval.



Gail Langevin receives her NASA's History Program Award in 2017. (Photo credit: NASA Langley)

Her attention to detail and passion for accuracy were invaluable, and without her, we simply wouldn't have been able to do what we did.

Langley hasn't had a full-time historian or archivist since the 2000s, but Gail helped fill that void by serving as the Center's historical expert. She was the go-to person who could almost always answer any question on the spot. Just as importantly, those few times she didn't immediately know an answer, she'd know who would.

In 2017, just a few months before her retirement, Gail received NASA's History Program Award in recognition of her exemplary service, joyous enthusiasm, and creativity in serving Langley and NASA history. It was perhaps the only time I've ever seen her speechless, and she couldn't have been more humble and appreciative of the incredibly well-deserved honor.

Rest in peace, Gail.

JANE ODOM

Jane Odom passed peacefully away on 11 July 2019 at the age of 61 after a long battle with cancer. Jane was an archivist by trade and began her career in Washington, DC, with the National Museum of American History. She then spent 12 years as an archivist for nine

different members of congress. After that, she came to NASA as the History Division's Chief Archivist, a role in which she stayed for 17 years. Jane is survived by many loved ones, and her memory will live on in their hearts.

Remembrance by Jennifer Ross-Nazzari

Jane was my friend and colleague for many years. I remember the first time we met—at the University of Houston–Clear Lake open house in the summer of 2002. As the Chief Archivist, Jane was there to celebrate the relocation of the Johnson Space Center (JSC) History Collection. I was still an intern with the JSC Oral History Project then and had corresponded with Jane several times looking for information in the Headquarters History Division collection on individuals I was researching. She remembered me, and for an intern that was a big coup! We spoke for a while, and she insisted that I call on her whenever I needed help with a research request.

Once I became a permanent part of the JSC history team, I continued to rely on Jane's expertise when it came to locating documents. She and her staff were always happy to help, no matter the size or deadline, and we quickly became friends. Jane knew my interests and often shared articles with me from the *Washington Post* and other publications. She invited me to DC events and mailed me NASA items she knew I would



Jane Odom shares ribbon-cutting duties with Associate Administrator for the Office of Communications David Weaver. Chief Historian Bill Barry is on the left. (Photo credit: NASA)

enjoy. When I adopted my dog, Clara Barton, Jane fell in love with her and placed photographs of her on her desktop. She was one of the first people I told when I learned I had a book contract from the University of Washington Press, and we regularly chatted in the afternoons at least once a month to talk shop during her famous fruit breaks. We made a point of having dinner or coffee when I came to town to conduct interviews, do research, or attend conferences. I miss those calls and dinners.

On the day Jane passed away, I was on travel and sent her a text and photo of two women in a convertible laughing. The image reminded me of Jane's smile and laugh. I'll always remember her kindness, generosity, and laughter.

Remembrance by Steve Garber

I had the honor and privilege of working with Jane Odom for about 17 years here at NASA Headquarters. While it's obviously difficult to distill her well-lived life, we might simply note that she was the consummate professional and always personable. She brought order to a previously large, but ad hoc, Historical Reference Collection here at Headquarters and fostered training and collaboration with other archivists at the Centers



Jane Odom. (Photo credit: Advent Funeral)

and beyond NASA. She enjoyed her work, and it showed. She was friendly and liked working with all different kinds of people. Jane taught me many things about archival best practices, but more importantly, I learned a great deal about treating others with kindness, respect, and professionalism just by observing Jane.

To my mind, she exhibited truly incredible resolve and was startlingly upbeat about her serious illness without being a Pollyanna. I won't forget a great visit I had with her during her illness when I planned to stay only a short time, but we ended up driving to the library, then going out for coffee, and chatting for several hours. Throughout, she retained her sense of humor. Shortly after she passed away, a renowned author wrote an insightful article about life lessons to pull from Snoopy—I immediately thought of her and was sad that I couldn't share such things with her any longer.

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