CHAPTER 16

CRITICAL THEORY AS A TOOLBOX: SUGGESTIONS FOR SPACE HISTORY'S RELATIONSHIP TO THE HISTORY SUBDISCIPLINES

Margaret A. Weitekamp

After the loss of the Space Shuttle *Columbia* in February 2003, I spoke on a number of radio programs. In the days after the accident, I had written a newspaper editorial reflecting on my fellowship year at the National Aeronautics and Space Administration (NASA) Headquarters History Office in 1997–1998. As a result, the small upstate New York college where I was teaching put my name on its Web site as a local space expert. Busy with classes, I accepted the invitations that fit most easily into my schedule. All but one went smoothly. Too late to cancel, I realized that I had agreed to be the guest for a Las Vegas radio personality whose regional following loved him for his right-wing political opinions and his penchant for controversy. Halfway through the hour-long program, a loyal listener began his question with an apology. He had missed my introduction at the beginning of the hour: "I'm sorry," he asked me, "I didn't hear . . . . Are you a NASA critic or a NASA apologist?"

His question took me aback. I did not consider myself to be either. As an historian of 20th-century America, I studied space history because it allowed me to investigate the intersections of many different themes—politics, society, culture, science, technology, gender, and race—all in one subject. Although historians' conclusions certainly support or criticize particular policy decisions, I saw doing space history as investigating what spaceflight efforts could reveal about a particular time and place: how specific historical contexts shaped which projects were pursued, why historical actors made particular decisions, and how spaceflight technologies have been embedded in their cultural contexts. Regrouping, I tried to explain the role of the professional historian to the listener.

For many years, the caller's assessment of space experts as entrenched in one camp or the other—as either boosters/apologists or critics/exposers—would not have been wrong. In a 2000 *Space Policy* article, Roger D. Launius, then the NASA Chief Historian, argued that space history could be categorized into three parts, including two categories that were more sophis-

ticated but not altogether different than the caller's binary options. The first, the "historiography of expectation" (my caller's "apologists"), is, according to Launius, "unabashedly celebratory and includes not only the so-called 'Huntsville School' of writing but also those fascinated with the machinery and those who use space history to promulgate the space exploration agenda for the future." The second group, the exposés, used space history to question the validity of space exploration efforts at all. Finally, Launius outlined a third category of scholarship that he called the New Aerospace History: "professionally-trained scholars of differing ideologies and prerogatives who concentrate on questions other than whether or not space exploration is justifiable."[1]

Launius's choice of name for this school of historiography, the "New Aerospace History," self-consciously positioned the newest space history scholarship as descended from the New Social History advanced beginning in the 1960s and 1970s. By doing so, he emphasized the active engagement of the New Aerospace History with recent scholarship in the broader field of history. At the same time, he marked the place of space history as a growing subdiscipline within a field still shaped by the New Social History. Indeed, the very subject of this paper—a study of the relationship of space history to the history subdisciplines—reflects the proliferation of subject areas created when historians wrestling with questions of race, class, ethnicity, and gender challenged the artificial nature of the consensus school's master narrative. As a result, mapping the 50 years of space history's expansion means surveying it against the shifting background of a complex and changing discipline.

Such a survey requires two different approaches. First, this analysis reviews and outlines space history's evolution since the beginning of the Space Age. Because the aim of this piece is to survey the field, the bibliography included in the notes offers a sample of relevant works but not a complete accounting of any subdivision of the field.[2] Second, the paper offers some perspective on space history's current relationship to the rest of the discipline of history as practiced in the United States. When examined in these two ways, space history exists both in "relation to" other history subdisciplines (a terminology which implies separation from the other subfields and an internal cohesion within space history, two points that deserve questioning in their own right) and in a continually evolving "relationship with" the rest of the discipline. As this essay maps those dynamics, it also offers some suggestions.

Although the New Aerospace History developed in dialogue with current historical scholarship, the insights of the New Social History have still been only incompletely incorporated into space history. This deficit is not

1. Roger D. Launius, "The Historical Dimension of Space Exploration: Reflections and Possibilities," *Space Policy* 16 (2000): 23–38.

2. Asif Siddiqi's chapter in this volume offers a more complete current historiography.

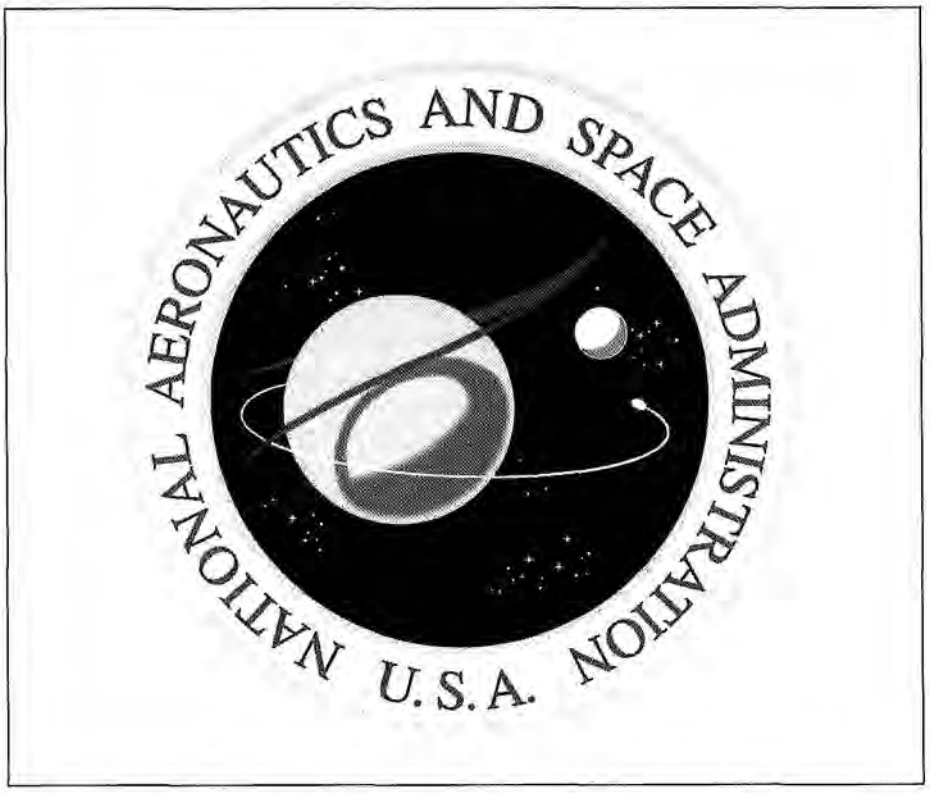
attributable to a lack of source material, but rather to a limited perspective on what it would mean to integrate the study of race, class, ethnicity, and gender into space history more fully. Bringing the insights of the New Social History to space history is not a call for more compensatory histories of the still-understudied women in the space field or for separate histories of each minority group or ethnicity working in any particular segments of space exploration. (Although compensating for past omissions remains a useful contribution to the field, it is just the first step in historical analysis.) If the New Social History has taught historians anything, it is that gender, race, ethnicity, and class exist in every history—for both privileged and marginalized groups. Gender identity shapes the historical experience of both women and men. Racial identity affects the lives of White people just as much as it does for people of color. Bringing this perspective into analyses of technologies or politics requires a new set of tools.

New developments in the humanities—specifically critical theory—offer a toolbox of concepts and methods that will allow space history to delve further into questions of identity, power, and point of view. If the tools of critical theory can be adapted without straying too far from the narrative tradition of historical scholarship (that is, by adopting its principles and insights without overreliance on theoretical terminology, which can become opaque jargon), the result will bring space history into more fruitful dialogue with the rest of the scholarly community while bringing the insights of recent scholarship to a wider readership.

A BRIEF HISTORY OF SPACE HISTORY

The active study of space history began with the very first successful orbital flights in the late 1950s. After the flights of Soviet artificial satellites Sputniks I and II in 1957, spaceflight efforts in the United States generated awareness by both participants and observers that these events were historic; the participants were "making history." Because American lawmakers were also cognizant of the history-making potential of U.S. space efforts—and of the need to publicize American achievements to the rest of the world—the 1958 National Aeronautics and Space Act included, alongside the directives for the creation of a civilian space agency, the mandate that NASA "provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof."[3] In practical terms, this directive provided the basis for the creation and maintenance of NASA's history offices, archives,

3. "National Aeronautics and Space Act of 1958," Public Law 85-568, in *Exploring the Unknown: Selected Documents in the History of the U.S. Civil Space Program*, vol. 1, *Organizing for Exploration*, ed. John M. Logsdon (Washington, DC: NASA SP-4407, 1995), p. 337.



The 1959 NASA Seal. *(NASA photo no. GPN-2002-000195)*

and libraries. The space agency even began a fine arts program, sponsoring a still-ongoing effort to commission artists to record NASA's achievements through sketches, paintings, and other art forms.[4]

The story of how NASA came to interpret its mandate to include a history program began, at least in part, with Melvin Kranzberg, one of the fathers of the history of technology and a key figure in the creation of the NASA History Office. Kranzberg was a faculty member at the Case University of Technology in Cleveland, Ohio, when Case's president, T. Keith Glennan, was asked by President Dwight D. Eisenhower to become the founding Administrator of NASA. In 1958, Kranzberg persuaded Glennan to create a history office at the new civilian space agency in the tradition of the successful history offices working in the armed forces and in other federal agencies. The

4. For history and individual artists in the NASA Art Program, see Anne Collins Goodyear, "The Relationship of Art to Science and Technology in the United States: Five Case Studies,

continued on the next page

founding of the NASA History Office and the beginning of space history as a field occurred at the same time that the broader discipline of history began to see the development of distinct subfields organized by topic and approach.[5]

Around the same time that his discussions with Glennan were inspiring the new NASA History Office, Kranzberg also helped to found the Society for the History of Technology (SHOT). Kranzberg saw the history of technology as the latest development in the study of the past: the newest link in a chain of histories that offered fresh topics of study and modes of analysis to the expanding field. In May 1962, he published an article in *Science* magazine titled "The Newest History: Science and Technology." In it, he compared the history of technology to James Harvey Robinson's *The New History* (1912), published exactly 50 years earlier. As Kranzberg noted, at the same time that Robinson was developing his New History, another historian, George Sarton, was also offering the field a groundbreaking new subject for consideration: a new history of science. In all three cases, changing world events, social movements, and academic developments inspired historians to rethink their conceptions and interpretations of the past.[6]

The development of innovative historical approaches—and thus of new historical subfields—drove the central argument of Kranzberg's *Science* article. For the history of technology, Kranzberg argued, the launch of Sputnik I on 4 October 1957 marked the beginning of a new era. In response, the United States needed not only a technological response in the form of a space program, but also a study of "technology and science as essential components of our culture, affected by and affecting every other aspect of society." Building on the tradition of change and growth in the historical field, Kranzberg saw new histories as extending and expanding a vital and changing discipline. In his words, "Just as the 'new' history triumphed over the 'old' but never succeeded in dislodging it completely, so today the 'new' history is itself being supplemented

continued from the previous page
1957–1971" (Ph.D. diss., The University of Texas at Austin, 2002); Anne Collins Goodyear, "NASA and the Political Economy of Art, 1962–1974," in *The Political Economy of Art: Creating the Modern Nation of Culture*, ed. Julie Codell (Newark: University of Delaware Press, forthcoming); Anne Collins, "Art, Technology, and the American Space Program, 1962–1972," *Intertexts* 3, no. 2 (fall 1999): 124–146; Anne Collins Goodyear, "On the Threshold of Space: Norman Rockwell's Longest Step," *Architecture and Design for Space: Vision and Reality* exhibit catalog (New York: Harry N. Abrams, Inc., 2001), pp. 102–107 (exhibit shown at the Art Institute of Chicago, 24 March–21 October 2001); "Robert Rauschenberg's Space-Age Allegory, 1959–1970," in *1998 National Aerospace Conference Proceedings* (Dayton, OH: Wright State University, 1999): 82–91.

5. For Kranzberg's influence on the creation of NASA's History Office, see Roger D. Launius, "NASA History and the Challenge of Keeping the Contemporary Past," *Public Historian* 21 (summer 1999): 63–81.

6. Margaret Rossiter, ed., *Catching Up With the Visions: Essays on the Occasion of the 75th Anniversary of the Founding of the History of Science Society* (Chicago: University of Chicago Book for the History of Science Society, 1999), a supplement to *Isis* 90.

by the 'newest' history."[7] Kranzberg's *Science* article is particularly instructive for a discussion of how today's space history has evolved because his analysis of American historiography up to 1962 offers a useful model for thinking about how new histories expand the discipline of history. In addition, it points out the close link between space history and the history of technology, which continues to be a vital and important subfield for space history.

If the NASA History Office's existence can be traced to Glennan and Kranzberg, its reputation for scholarly rigor began with the first NASA Historian, Eugene "Gene" M. Emme. From the beginning of its life, the NASA History Office worked to balance two major charges: collecting and archiving the history of U.S. civil space exploration efforts for use by historians, scholars, and the press, and interpreting that material to advise the space agency on ongoing decisions. In addition to managing these tasks, Emme put the program on the path to real scholarly publishing. He instituted the practice of peer review for historical manuscripts published by the NASA History Office, a process that parallels the one used by academic presses and one which has allowed NASA's history program to develop into a respected site for both research and publishing. As the first in a series of interpretive volumes recording the details of historic space achievements within a narrative structure, Swenson, Grimwood, and Alexander's *This New Ocean: A History of Project Mercury* set the tone for NASA's authoritative recording of space history. Within its first two decades, NASA's project histories also included books on Gemini, Vanguard, and Apollo.[8] Within the structures of the U.S. space agency, the NASA History Office focused on American space efforts, emphases that also characterized the field of space history generally.

The NASA History Office also began the ongoing relationship between space history and oral history. As a research technique, the tape-recorded interview came into its own in the 1940s and became a useful tool for recording histories both "from the bottom up" and "from the top down."[9] By 1966, the Oral History Association provided a professional organization for oral historians to share their work while developing and refining the ethical and practical guidelines for productive oral histories. For an endeavor like spaceflight,

7. Melvin Kranzberg, "The Newest History: Science and Technology," *Science* 136, no. 3515 (11 May 1962): 463–468.

8. Loyd S. Swenson, Jr., James M. Grimwood, and Charles C. Alexander, *This New Ocean: A History of Project Mercury* (Washington, DC: NASA SP-4201, 1966); Constance McLaughlin Green and Milton Lomask, *Vanguard: A History* (Washington, DC: NASA SP-4202, 1970); Barton C. Hacker and James M. Grimwood, *On the Shoulders of Titans: A History of Project Gemini* (Washington, DC: NASA SP-4203, 1977). See also Launius, "NASA History," pp. 63–81.

9. Paul Thompson, *The Voice of the Past: Oral History*, 3rd ed. (Oxford: Oxford University Press, 2000); Edward D. Ives, *The Tape-Recorded Interview: A Manual for Fieldworkers in Folklore and Oral History* (Knoxville: University of Tennessee Press, 1995). The best practical handbook is Donald A. Ritchie, *Doing Oral History: A Practical Guide*, 2nd ed. (Oxford: Oxford University Press, 2003).

which required the work of so many different managers, engineers, scientists, and pilots, oral history became a key means of recording the full history of various space programs, NASA Centers, and historical actors. NASA continues to use oral history as a major tool for collecting, preserving, and disseminating space history.[10]

If the early years of space history (and its relationships with the history subdisciplines) can largely be traced through a history of the NASA History Office, once the field developed into some maturity in the 1980s, the story got much more complex. From where it began in the early 1980s, space history underwent dramatic growth and transformation. Because a full analysis of that historiography would be too long and involved for this piece (and has already been done extraordinarily well elsewhere, as noted above),[11] an outline serves better as a way of noting the relationships between the growing subfield and the changes happening in the discipline of history as a whole. Three events mark key points in the evolution of space history: a 1981 Smithsonian proseminar, Walter McDougall's Pulitzer Prize–winning 1985 book, and Asif Siddiqi's 2000 history of the Soviet space program, *Challenge to Apollo.*

In 1981, a Smithsonian Institution proseminar in space history hosted at the National Air and Space Museum marked the emergence of space history as a recognized field. David DeVorkin and Pamela Mack of the then–Department of Space Science and Exploration called the meeting to bring together scholars working on space history in order to assess the progress made over the previous 15 years. The report of the meeting in *Isis* recorded a successful and growing subdiscipline, noting that "the field is already marked with a respectable number of books, monographs, dissertations, and works-in-progress." The questions being asked at this meeting offer a sense of the state of development of the field. Three issues dominated discussion: first, "Is space history best considered part of the history of science or of the history of technology?"; second, "Can space science be considered a coherent discipline?"; and finally, "How should space historians confront the peculiar state of sources in this field?"[12]

In debating the first question, historians of science and historians of technology who worked on space topics found themselves in active discussion about the commonalities and differences between their home subfields. The discussion of space history's place quickly made it clear just how much space history required the insights of both subdisciplines. Requiring space history to be either one or the other would be insufficient. (The divisions between these

10. See Roger D. Launius, "We Can Lick Gravity But Sometimes the Paperwork Is Overwhelming: NASA, Oral History, and the Contemporary Past," *Oral History Review* 30, no. 2 (summer/fall 2003): 111–128.

11. Launius, "Historical Dimension," *Space Policy,* pp. 23–38.

12. Richard F. Hirsh, "Proseminar on Space History, 22 May 1981," *Isis* 73, no. 266 (1982): 96–97.

two subdisciplines and the professional organizations that represent them are only just beginning to be healed. The November 2005 joint meeting between the Society for the History of Technology and the History of Science Society in Minneapolis, Minnesota, marked a renewed attempt to bridge this gap).[13] As a subject centered on the relationships among science, technology, and the state, the history of spaceflight pushed historians to address science and technology as social and political activities.

Space historians at the 1981 Smithsonian proseminar also shared a common set of anxieties about sources. Many faced significant problems getting full access to documentation that was still considered sensitive during the renewed Cold War tensions of the early Reagan administration. At the same time, massive space projects generated so much paperwork that they became difficult to interpret. In the opinions of those attending the Smithsonian event, government records from active or recently active programs were "abundant but poorly organized." Again, this recorded discussion provides a useful benchmark for assessing space history. Given how much space history would expand by the early 1990s, when the end of the Cold War led to an explosion of newly available materials, the question of sources provides a striking point of comparison.[14]

One of the solutions offered for dealing with incomplete or sensitive records was oral history. The proseminar's organizers quickly took up that charge. Between 1981 and 1990, the Department of Space History at the Smithsonian Institution's National Air and Space Museum organized several oral history projects. These included the Space Astronomy Oral History Project, the Space Telescope History Project, the Glennan-Webb-Seamans Project for Research in Space History, and the RAND History Project. In all, the interviews conducted reflected the principal investigators' interests in space science, as well as in management and political themes in space history. In the final catalog of these oral histories, the organizers acknowledge that their understanding of the interactions between science, technology, and the state changed considerably over the course of the oral history projects. This insight reflects the scholars' own intellectual growth during the course of the project through the 1980s, but it also reflects the state of the field. In the midst of their work, space history underwent an evolutionary leap.[15]

13. The organizations had unsuccessful joint meetings in Pittsburgh in 1986 and in Madison, WI, in 1991. See Terry S. Reynolds, "From the President's Desk: 'Time to Try Again?'" *SHOT Newsletter* (April 2000), available online at *http://shot.press.jhu.edu/Newsletters/archive/2000_April/presdesk.htm* (accessed 21 April 2005).

14. Hirsh, "Proseminar," pp. 96–97.

15. Martin J. Collins with Jo Ann Bailey and Patricia Fredericks, "Oral History on Space, Science, and Technology: A Catalogue of the Collection of the Department of Space History, National Air and Space Museum" (Washington, DC: Smithsonian Institution, 1993), pp. i–v.

Walter McDougall began his Pulitzer Prize–winning analysis of space history with a metaphor of evolution: the image of the first fish-turned-amphibian. In that moment, he suggested, biological adaptation jumped forward, not in a slow, incremental progression, but in a saltation, an evolutionary leap. According to McDougall, this metaphor also described the transformed relationship between the state and research and development (R&D) in the years after the Second World War. In many ways, . . . *The Heavens and the Earth* was also a saltation for space history. McDougall's work was a watershed book for its comprehensive consideration of space history as a part of political history.[16]

Twenty years later, McDougall's work remains a required first reference on many topics for most space historians (both popular and academic). At a 1997 40th-anniversary conference commemorating the launch of Sputnik, many historians began their analyses with a reference to McDougall's work.[17] In considering how space history exists both in relation to (that is, standing separately) and in active relationship with particular historical subdisciplines, however, McDougall's work solidified a link between space history and political history that remains strong. Few would consider writing a space history without some serious consideration of party politics, national legislators, or foreign and domestic policy. More so, political historians welcome discussion of space history as an avenue into broader topics.

Just as McDougall's example required space historians to place space history in its political context, so also by the mid-1980s, new developments in the history of technology required historians to reconsider how technologies existed as embedded in their social contexts. As a result of the ongoing relationship between space historians and historians of technology (who are often one and the same), space history and the history of technology grew and broadened in similar ways over the years. In a 1986 *Technology and Culture* article, Kranzberg published his famous "six laws of technology," guiding principles that emphasized the role of technology as an inherently human endeavor, embedded in culture. Likewise, space history has deepened its understanding of space technologies—and indeed, of space programs—as embedded in particular social, political, and cultural contexts. Within the Cold War context of the early space race, however, for the first 20 years of space history, most U.S. authors focused on American space efforts, in part because these stories resonated with the public and in part because the ongo-

16. Walter McDougall, . . . *The Heavens and the Earth: A Political History of the Space Age* (New York: Basic Books, 1985), p. 3. Because of its length, . . . *The Heavens and the Earth* is not easily assigned in a classroom setting. A digestible history of space exploration that encompasses the political and social contexts is still needed.

17. "Reconsidering Sputnik: 40 Years Since the Soviet Satellite Symposium" (held in Washington, DC, 30 September–1 October 1997).

ing diplomatic stalemate with the Soviet Union made information about the Soviet side of the story all but impossible to access.[18]

Another saltation for space history happened at the end of the Cold War, when the fall of the Berlin Wall in 1989 presaged the disintegration of the Soviet Union in 1991. Not only did these geopolitical changes have major impacts on the way that spaceflight would be conducted from that point onward (thus requiring historians to rethink how space history would be written from then on), but these changes also created a boom in possibilities for space history. New sources emerged, both through the declassification of military or other classified space projects in the United States and through the release of previously secret sources from the former Soviet Union.

New sources yielded new histories. One that compares to Walter McDougall's in scope and impact is Asif Siddiqi's *Challenge to Apollo: The Soviet Union and the Space Race, 1945–1974.* Working in the Russian-language documents made newly available by the release of uncensored records after 1988, Siddiqi reconstructed the history of the Soviet space program from the early 1930s Group for the Investigation of Reactive Engines and Reactive Flight (GIRD) to the end of the N1L3 program in 1974. Comprehensive, detailed, and yet still very readable, his narrative offers new dimensions and backstories to known events, revealing details about the people and the decision-making processes that created the Soviet space program. In doing so, the book presents a clear look at the history of Soviet space efforts, the outlines of which had previously only been gleaned from censored records or American intelligence. The result, Siddiqi suggests, sheds new light on human space exploration as a whole: "What may be possible now is to take a second look not only at the Soviet space program, but also the U.S. space program—that is, to reconsider again humanity's first attempts to take leave of this planet."[19] In the United States, the end of the Cold War also opened new topics for space researchers, permitting histories of previously classified programs (for example, the CORONA spy satellites).[20]

Indeed, the number of topics that constitute space history has multiplied in recent years. As it now stands, space history encompasses the history of human spaceflight, including reevaluations of programs, centers, technologies,

18. Melvin Kranzberg, "Technology and History: 'Kranzberg's Laws,'" *Technology and Culture* 27 (1986): 544–560.

19. Asif A. Siddiqi, *Challenge to Apollo: The Soviet Union and the Space Race, 1945–1974* (Washington, DC: NASA SP-2000-4408, 2000), p. x. Also republished as a two-volume set: Asif A. Siddiqi, *The Soviet Space Race with Apollo* (Gainesville: University Press of Florida, 2003), and Asif A. Siddiqi, *Sputnik and the Soviet Space Challenge* (Gainesville: University Press of Florida, 2003).

20. Dwayne A. Day, John M. Logsdon, and Brian Latell, eds., *Eye in the Sky: The Story of the Corona Spy Satellites*, Smithsonian History of Aviation Series (Washington, DC: Smithsonian Institution Press, 1998).

events, and people, including both military and civilian spaceflight projects and technologies.[21] The recent addition of commercial space ventures and a nascent space tourism industry should soon join these topics. Human spaceflight makes up only a part of the picture, however. Space history must also include satellite programs, launch vehicles, and planetary exploration. The history of space science and of astronomy is also a part of space history.[22] Although most of what is written focuses on stories of success, accounts of incomplete, failed, or abandoned projects also illuminate the forces that shape space exploration. And space history is most decidedly international. As the number of countries participating in space efforts has increased, space history reflects an expansion beyond the previous U.S.-Soviet/Russian focus. In part, this breadth of topic and diversity of approach define the New Aerospace History.[23]

THE NEW AEROSPACE HISTORY

More so, however, the New Aerospace History developed in the 1990s as a result of the increasing professionalization of space history. Like other related subdisciplines, space history evolved from histories written by participants and practitioners into a field being advanced by professionally trained historians.[24] Roger D. Launius, the NASA Chief Historian in the 1990s, also led the push for space history to engage the cutting-edge scholarship in the wider discipline. During his tenure leading the NASA Headquarters History Office from 1990 through 2002, Launius worked to develop the Agency's publishing efforts as a way of creating opportunities for a rigorous practice of space history. For instance, in addition to commissioning new volumes for the exist-

21. See, for example, Andrew Chaiken, *A Man on the Moon: The Voyages of the Apollo Astronauts* (New York: Viking Press, 1994); Roger D. Launius, "NASA and the Decision to Build the Space Shuttle, 1969–72," *The Historian* 57 (autumn 1994): 17–34; Robert A. Divine, *The Sputnik Challenge: Eisenhower's Response to the Soviet Satellite* (New York: Oxford University Press, 1993); Roger D. Launius and Howard E. McCurdy, eds., *Spaceflight and the Myth of Presidential Leadership* (Urbana: University of Illinois Press, 1997); W. Henry Lambright, *Powering Apollo: James E. Webb of NASA* (Baltimore: Johns Hopkins, 1995); James J. Harford, *Korolev: How One Man Masterminded the Soviet Drive to Beat America to the Moon* (New York: John Wiley & Sons, Inc., 1997).

22. See, for instance, Pamela Mack, *Viewing the Earth: The Social Construction of Landsat* (Cambridge, MA: The MIT Press, 1990); "Developing U.S. Launch Capability: The Role of Civil-Military Cooperation" (paper presented at the American Association for the Advancement of Science conference, Washington, DC, 5 November 1999); David DeVorkin, *Science with a Vengeance: How the Military Created the US Space Sciences After World War II* (New York: Springer, 1993).

23. See, for instance, Margaret A. Weitekamp, *Right Stuff, Wrong Sex: American's First Women in Space Program* (Baltimore: Johns Hopkins, 2004); John Krige and Arturo Russo, "Europe in Space, 1960–1973," European Space Agency SP-1172 (Noordwijk, Netherlands: ESA Publications Division, 1994).

24. Similar trends exist in the history of technology. At the 13 January 2005 meeting of the Historical Seminar in Contemporary Science and Technology at the Smithsonian Institution's National Air and Space Museum, a spirited debate arose between those celebrating the prevalence of professional historians in the field and those lamenting the absence of trained engineers.

ing Special Publications series, Launius also began the NASA Monographs in Aerospace History, a series of slim paperback volumes focused on specific topics. Throughout his efforts, Launius aimed to bring NASA's publishing to a new level of scholarly excellence, an effort that was recognized by the larger history community when the Agency's history books began to win prizes from professional organizations. Through the development of a professionalized history, space history forged new connections with other subdisciplines at the same time that it also became a somewhat more coherent subfield.[25]

As with so many things, the status and standing of space history as a subdiscipline can be measured through its funding and visibility. Several significant fellowships exist for emerging and established scholars. The American Historical Association (AHA) and NASA have offered a joint full-year predoctoral or postdoctoral aerospace history fellowship each year since 1986. And several different fellowships for graduate students (at the master's, predoctoral, and postdoctoral levels) and senior scholars exist at the Smithsonian Institution's National Air and Space Museum. Space history is also a consistent presence at major scholarly conferences including the AHA, the Society for the History of Technology (SHOT), the Organization of American Historians (OAH), and the American Studies Association (ASA).

Space history also has a tradition of gathering scholars and participants to celebrate and commemorate major anniversaries in the history of the field. Beginning with events and symposia held to mark the first 25 years of the Space Age, such conferences have recorded the state of the field at various points in its existence. This very volume follows in that tradition. As the proceedings of the NASA History Division's "Critical Issues in the History of Spaceflight" symposium, the articles contained here offer a current indicator of the subject's breadth and diversity—and of participants' sense of the field as a coherent enough one to warrant such a meeting.[26]

As much as space history has become a more internally coherent field, however, its employment opportunities, graduate study, and publishing trends reflect its roots in many different subdisciplines. Although dedicated space history jobs can be found at NASA (at Headquarters or the Centers), the Smithsonian's National Air and Space Museum, or the Space Policy Institute

25. For instance, the Organization of American Historians (OAH) awarded its 1998 Richard W. Leopold Prize to Andrew Butrica's *To See the Unseen: A History of Planetary Radar Astronomy* (Washington, DC: NASA SP-4218, 1996).

26. Allan Needell, ed., *The First 25 Years in Space: A Symposium* (Washington, DC: Smithsonian Institution Press, 1983); Alex Roland, ed., *A Spacefaring People: Perspectives on Early Spaceflight* (Washington, DC: NASA SP-4405, 1985); Martin J. Collins and Sylvia D. Fries, eds., *A Spacefaring Nation: Perspectives on American Space History and Policy* (Washington, DC: Smithsonian Institution Press, 1991); Stephen J. Garber, ed., *Looking Forward, Looking Backward: Forty Years of U.S. Human Spaceflight Symposium* (Washington, DC: NASA SP-2002-4107, 2002).

Jan Davis and Mae Jemison on STS-47. *(NASA photo no. GPN-2004-00023)*

at George Washington University, most space history experts continue to find homes in non-space-specific academic jobs in history or political science. (In a rare occurrence, the University of Central Florida offered and filled a full-time, tenure-track space history position in 2005.) The many intersections of space history with the other history subdisciplines offer employment opportunities that are at least as ample as any academic field's opportunities are. Likewise, junior scholars engaged in graduate work have focused on space topics while earning degrees in history and political science as well as fields as diverse as geography and communications.[27] Opportunities for publishing peer-reviewed articles also reflect the roots of space history as a topic studied by many different types of historians. Except for *Space Policy*, few professional journals have space topics as a central focus.

The inherently interdisciplinary nature of space history can be seen in some of its best new works. For instance, Howard McCurdy's *Space and the American Imagination* combines social and cultural history with public policy analysis to show how popular culture influenced policy-making. McCurdy analyzes how "space boosters" in the 1950s and 1960s used magazines, television shows, and movies to create the groundswell of support needed to loose the massive amounts of public funding required to carry out space exploration initiatives. McCurdy's detailed analysis persuasively links comics and

27. Kathy Keltner, for example, is writing a communications Ph.D. dissertation at Ohio University.

Congress. What might have seemed like an unlikely junction between unrelated fields is now a connection being followed by other scholars.[28]

Some likely connections are only just being explored. Despite what might seem like natural areas of overlap, very few scholars have actively pursued work at the juncture between environmental history and space history. As areas of history that both study the intersections of science, technology, and culture, space history and environmental history have much to say to each other. In a field that is building on its histories of national parks and natural spaces, environmental history investigates the intersections between nature, technology, and public policy. Environmental historians have taken on roads, cars, and urban/suburban sprawl as topics but have stopped short of dealing with outer space. As much as many environmental historians have not considered outer space as "nature" or even as a natural place, neither have space historians looked to environmental history for ways to think about space as an environment. Environmental history might also offer models for thinking about the Earth and low-Earth orbit as "natural." New work by scholars such as Neil Maher demonstrates the extent to which exploring space is less about finding nature in outer space than it is about obtaining new perspectives on nature on Earth. In the environmental historian's triad of investigating the intersections between nature, technology, and culture, space historians often ignore nature. The need for intersection between these subfields is a development being echoed by historians of science and technology. Both the History of Science Society (HSS) and SHOT now have environmental history special interest groups (called the "Earth and Environment Forum" and "Envirotech," respectively). Despite these forays into interdisciplinarity, space history has often lagged behind the evolution of the discipline as practiced in the United States.[29]

By the 1980s, the New Social History had fundamentally transformed the discipline's practice, becoming formalized through established journals, academic appointments, and professional organizations. The rejection of the consensus school led to renewed attention to the lives of ordinary people and a new set of narratives that challenged the accepted periodization of U.S. and world history. Although critics complained that the field of history was becoming fractured or that a common American identity was being lost,[30] advocates

28. Howard McCurdy, *Space and the American Imagination* (Washington, DC: Smithsonian Institution Press, 1997).

29. Two examples are Neil Maher, "On Shooting the Moon," Gallery in *Environmental History* 9 (July 2004): 526–531, and Erik M. Conway, "The World According to GARP: Scientific Internationalism and the Construction of Global Meteorology, 1961–1980" (paper presented at the International Commission on History of Meteorology, Polling, Germany, 5–9 July 2004). "Envirotech" was founded at the August 2000 SHOT meeting in Munich, Germany.

30. Arthur M. Schlesinger, Jr., *The Disuniting of America: Reflections on a Multicultural Society* (New York: W. W. Norton & Company, 1998).

for the New Social History argued that particular attention to women, laborers, people of color, the poor, or people with disabilities revealed aspects of the past that had been systematically ignored by the previous, more unified narrative. Growing scholarship demonstrated how exclusionary and limited the master narrative had needed to be in order to maintain its cohesiveness.

Through the 1970s and the 1980s, scholars developed subfields with new modes of analysis that focused on questions of difference and power. In 1990, when Eric Foner edited a new collection of essays for the AHA called *The New American History*, in addition to essays on various periods of U.S. history, the volume included attention to six "major themes in the American experience." These included "Social History," "U.S. Women's History," "African-American History," "American Labor History," "Ethnicity and Immigration," and diplomatic history. If these topics can be considered a rudimentary breakdown of the established subfields in American history and of the concerns of the New Social History, then an examination of these areas offers insight into how well space history has engaged each of them. In the parlance of many historians, this longer list is often simplified to class, race, ethnicity, and gender.[31]

Political scientists working on space topics have addressed questions of class or labor history in space history through their analyses of NASA as a complex organization and NASA's management culture. Sadly, these subjects became all too relevant after the losses of two Space Shuttles, *Challenger* in 1986 and *Columbia* in 2003. Both the Rogers Commission and the Columbia Accident Investigation Board diagnosed organizational cultures that had become inured to risk. In addition, they found communication and project management problems that contributed directly to the loss of the two Shuttle crews. As a result, scholars have paid particular attention to NASA's decision-making culture. Many other aspects of NASA as a labor force remain unexamined, however. Although the individual stories of astronauts, flight controllers, and rocket scientists have been recorded, the collective stories of the thousands of people who made particular space projects work offer many opportunities for thinking about the space agency as a workplace.[32]

Labor practices and environments, including the relationship of the space agency with contract work, a key characteristic of NASA's labor structure—and of the larger aerospace industry—remain an underdeveloped topic. For instance, the Grumman Corporation, the engineering company that won the

31. Eric Foner, ed., *The New American History* (Philadelphia: Temple University Press, 1990), p. vi.

32. Howard McCurdy, *Inside NASA: High Technology and Organizational Change in the U.S. Space Program* (Baltimore: Johns Hopkins, 1993). See also Diane Vaughan, *The Challenger Launch Decision: Risky Technology, Culture, and Deviance at NASA* (Chicago: University of Chicago Press, 1996); Joseph J. Trento, *Prescription for Disaster: From the Glory of Apollo to the Betrayal of the Shuttle* (New York: Crown Publishers, Inc., 1987); Greg Klerkk, *Lost in Space: The Fall of NASA and the Dream of a New Space Age* (New York: Pantheon Books, 2004).

NASA contract to design and manufacture the Lunar Modules for the Apollo Program, never unionized because Grumman self-consciously promoted a sense of community at its facilities while discouraging labor organizing. In a very different example, engineers working at space work sites like the Jet Propulsion Laboratory came to understand that layoffs were a part of the business plan. Aerospace companies hired highly skilled workers when contracts began, only to dismiss them when contracts ended. These two stories are small pieces of a larger story about how shifting relationships between NASA, aerospace contractors, and the larger aerospace industry shaped and reshaped what it meant to do space work from the beginning of the Space Age through the end of the Cold War.[33] Finally, the labor history of the U.S. space program should also include the entire communities that grew up around NASA Centers, when long-term projects like Mercury, Gemini, or Apollo required entire families to relocate. The transformations of places like Huntsville, Alabama, or Cape Canaveral, Florida, or Tysons Corner, Virginia, illustrate how the work of science and technology industries transformed landscapes, creating new communities and cultures.[34]

If the labor history of space has only just begun to be explored, questions of race and ethnicity have been almost entirely ignored. Only one book has dealt with race or ethnicity as a primary topic. J. Alfred Phelps's collective biography, *They Had a Dream: The Story of African-American Astronauts*, offers chapter-length biographies of African American astronauts as basic compensatory history (adding omitted names and events to the historical record without a broader analysis of their social, political, or cultural contexts).[35] Such work is a necessary beginning, but much more remains to be done. Given the sophistication of the analysis in African American history, Asian American history, and Native American history, and the emergence of interest in whiteness as a constructed racial category, space history's lack of analysis of race betrays an unspoken but distinct discomfort. The aspect of the New Social History that has received the most attention in space history has been women's contributions. In recent years, there has been a sudden flurry of attention to women in space. In 1996, when I began my dissertation research on Randy Lovelace's Woman in Space Program, a short-lived and privately funded proj-

33. M. G. Lord, *Astro Turf: The Private Life of Rocket Science* (New York: Walker & Company, 2005). See also Joan Lisa Bromberg, *NASA and the Space Industry* (Baltimore: Johns Hopkins, 1999). Lord's memoir of her father's work at the Jet Propulsion Laboratory (JPL) offers useful insights into JPL as a workplace. Bromberg addresses NASA's relationship with contracting companies as a business history while calling for future scholars to return to this subject through primary research.

34. Paul Ceruzzi, *From Tysons Corner to Internet Alley: High Technology in Northern Virginia, 1945–2001* (New Brunswick, NJ: Rutgers University Press, forthcoming in 2006).

35. J. Alfred Phelps, *They Had a Dream: The Story of African-American Astronauts* (Novato, CA: Presidio, 1994).

ect that tested women pilots for astronaut fitness in the early 1960s, only two short pieces and a book chapter had been written about the subject.[36] By the time my book was published in 2004, however, it counted as the fourth major treatment of that specific program in six years.[37] In addition, three new books have recently been published documenting women's successes as astronauts and cosmonauts.[38] In all, there are seven new books published since 2002 about women and space.[39] Another dissertation about NASA's first women astronauts connects the question of women astronauts to the literature in the history of science and technology.[40]

This attention reflects the increased visibility of women in the astronaut corps, the most visible face of NASA's programs. Yet, despite the attention to the subject, space history can still only be considered as working in relation to women's history but not in any real dialogue with women's history or women's studies. Most of the new accounts amount to compensatory history, adding women to the historical account with little attempt to contextualize the histories by using them to make a broader critique or reassessment of the time in which they are set. And little to no work has offered a critical analysis of the role of gender (both femininity and masculinity) in a particular time or place. Investigating the treatment of women can expand what is known about the complex, intersecting, social, cultural, and political contexts of the U.S. space program.

A partial solution for development in the neglected areas may lie in a subfield that has a long relationship with space history: oral history. Oral history continues to be a useful tool, technique, and intersecting subfield for space

36. Joseph D. Atkinson and Jay M. Shafritz, "The First Efforts of Women and Minorities to Become Astronauts," chap. 5 in *The Real Stuff: A History of NASA's Astronaut Recruitment Program* (New York: Praeger, 1985); Sheryll Goecke Powers, *Women in Flight Research at NASA Dryden Flight Research Center from 1946 to 1995*, Monographs in Aerospace History, no. 6 (Washington, DC: NASA, 1997); Sylvia D. Fries, "The History of Women in NASA," NASA TM-108100, Women's Equality Day talk, Marshall Space Flight Center, 23 August 1991.

37. Leslie Haynesworth and David Toomey, *Amelia Earhart's Daughters: The Wild and Glorious Story of American Women Aviators from World War II to the Dawn of the Space* Age (New York: William Morrow & Co., 1998); Stephanie Nolen, *Promised the Moon: The Untold Story of the First Women in the Space Race* (New York: Four Walls Eight Windows, 2002); Martha Ackmann, *The Mercury 13: The Untold Story of Thirteen American Women and the Dream of Space Flight* (New York: Random House, 2003); Weitekamp, *Right Stuff, Wrong Sex.*

38. Pamela Freni, *Space for Women: A History of Women with the Right Stuff* (Santa Ana, CA: Seven Locks Press, 2002); Laura S. Woodmansee, *Women Astronauts* (Burlington, Ontario: Apogee Books, 2002); Bettyann Holtzmann Kevles, *Almost Heaven: The Story of Women in Space* (New York: Basic Books, 2003).

39. In addition to those listed above, see also Laura S. Woodmansee, *Women of Space: Cool Careers on the Final Frontier*, Apogee Books Space Series 38 (Burlington, Ontario: Collector's Guide Publishing Inc., 2003).

40. Amy Foster, "Sex in Space: The Politics and Logistics of Sexually Integrating NASA's Astronaut Corps" (Ph.D. diss., Auburn University, 2005).

historians. In 1996, NASA's Johnson Space Center History Office initiated an oral history project to interview NASA employees and contractors from the Mercury, Gemini, Apollo, and *Skylab* programs, as well as to convert decaying oral history reel-to-reel tapes to more stable media. An analysis and reflection on NASA's history and continuing work with oral history can be found in Roger Launius's 2003 article in a special issue of the *Oral History Review* about oral history in the federal government.[41] As we continue to lose the original participants in early space efforts, the need to preserve space history in comprehensive, well-researched, -documented, and -preserved interviews is becoming all the more important. Furthermore, the current scholarship in oral history demands consideration of what recorded interviews reveal about race, class, gender, status, and power. Perhaps a closer relationship between oral history and space history, two subdisciplines that have been closely linked for some time, could provide one avenue for the New Aerospace History to develop in its integration of the insights of the New Social History.

In 2000, Roger Launius identified a New Aerospace History that seeks to engage with the scholarship and insights of the New Social History. And, as just outlined, much remains to be done. But in many ways, the scholarly world has already moved beyond the ideas of the New Social History. If space history is going to engage with the insights provided by the explosion of historical scholarship in the last 20 years, space historians must begin to grapple with the influences of critical theory.

CRITICAL THEORY AS A TOOLBOX

Critical theory is an umbrella term that encompasses the diverse and often divergent theoretical schools of structuralist, poststructuralist, feminist, Marxist, postmodern, and psychoanalytic theory that emerged since the 1970s in literary and anthropological analysis. Critical theory concerns itself with the differences between representations and reality and, in particular, the ways in which language constructs what is perceived. One part of this analysis is the complex social construction of various identities (race, class, gender, sexuality, etc.). Critical theory looks at how cultures and institutions construct some identities as privileged while marginalizing or denying others. (A similar dynamic also occurs on a national or international level, underlying colonialism and postcolonial relationships between states and peoples.) Critical theory questions the seeming obviousness of these categories, pointing out how assumptions about naturalness are part of the construction of privilege (and thus also of marginalization). The postmodern component of critical theory addresses globalization, consumerism, and the fragmentation

41. Launius, "We Can Lick Gravity."

of authority. Such scholarship often pursues discourse analysis, a study of how the way that a topic is discussed shapes its reality. Epistemological questions of how meaning is made and how we know what we know also drive this analysis. Critical theory thrives on juxtaposing texts (which include not only literal, written texts, but also any cultural form that can be read for meaning, including images, music, movies, or television). It embraces contradictions, often frustrating those who want definitive characterizations. In recent years, the exploration of these questions using critical theory has proven to be so fruitful that entire new research fields now exist, including cultural studies, queer theory, and critical race theory.

Historians began to engage literary theory in the late 1970s. In fact, by the time I entered graduate school in the early 1990s, there was a perceptible divide in the history department where I studied at Cornell University. On the one side, Dominic LaCapra led the School of Criticism and Theory, a summer institute begun in 1976 that brought together faculty and graduate students for an intensive six-week theory "boot camp" premised on the idea that an understanding of theory is fundamental to humanistic studies. On the other side, empiricists, including my adviser, taught the intensive study of primary documents—not as texts to be juxtaposed at will, but as evidence of the reality of the past.

The theorists argued that overarching concepts of hegemony, power, and privilege unlocked the central debates raised by the histories they analyzed. They embraced Foucault's suggestion that all history is really about the present, not the past, and that the "real" or "true" past was unknowable. They wrote comfortably for a scholarly audience, preferring analysis to narrative (which is all constructed anyway). The empiricists lamented the impenetrability of theoretical jargon and the ahistorical problems of bringing the postmodern European theory of Foucault to bear on czarist Russia, colonial Latin America, or premodern China. They believed that sufficient research could reveal a past that might not be objectively perceived but that was nonetheless real. They believed in the power of history as a tale well told, in the tradition of the scholar-writer. As I did with the radio caller mentioned at the beginning of this piece, I find that I resist fitting neatly into one category or the other. Although I completed my Ph.D. as a broadly trained Americanist rooted in empirical research, my first job—teaching women's studies, a very theory-centered field—became an informal three-year postdoc in critical theory.

Space history, of course, fits both camps. On the one hand, the history of spaceflight can easily be told as a modernist narrative of progress achieved through rationality and hierarchy. For that matter, space history also fits well into American exceptionalism, the model of U.S. history as an example for the world. On the other hand, critical theory also applies. National and international space efforts cannot be understood without consideration of the mass

media, mass consumption, and the mass production that feeds it. Globalization is also a crucial context for space history.

Indeed, the very topic of this essay, an analysis of the historiography of space history and its relationship with the other history subdisciplines, follows an epistemological line of inquiry. It seeks to illuminate critical issues in the history of spaceflight through an analysis of how the field of space history has been constructed and what other fields have been influencing the questions asked—at base, investigating how we do what we do, to the end of understanding how we know what we know. Over the last 10 years, critical theory has become an entrenched part of scholarly discourse, enabling useful critiques of power and difference that bridge national and international studies and bring race, gender, and class into the center of political and social analyses.

For those interested in space history, analyzing the broader cultural settings provides a new way to understand how space efforts resonated. Two examples help make the point. In her 1998 book *Aliens in America*, Jodi Dean analyzed the pre-Y2K fascination with aliens and UFOs as a part of the 1990s trend of interest in space-themed things. Dean suggests that Ron Howard's 1995 film *Apollo 13* transformed the story of a 1970 space accident into a tale that reflected 1990s American preoccupations with a safe return to home that is witnessed through television. Likewise, British scholar Debra Shaw analyzed the spacesuit as cultural icon in the context of broader American popular culture. In both cases, the authors used space as part of their analyses, but neither author is particularly interested in actual spaceflight. A wonderful opportunity exists here for a scholar to work on the cultural imagery of space while also taking spaceflight seriously as something real, not merely as a convenient text.[42]

One of the best examples of a scholar executing sophisticated theoretical analyses in plain language while taking spaceflight seriously is Constance Penley's analysis of NASA in the first half of her book *NASA/TREK*. Written in the wake of the Space Shuttle *Challenger*'s January 1986 explosion, media studies scholar and cultural critic Penley addressed the public's fixation on Christa McAuliffe, the "ordinary citizen"/teacher whose inclusion on the flight accounted for the intense media coverage of the much-postponed launch. Her analysis revealed how widely circulated sick jokes about the public deaths of the Shuttle astronauts betrayed cultural discomfort with women's presence in the highly technological Space Shuttle. Penley's arguments are carefully made and easy to read even as they draw on a vast literature in feminist theory. Penley moves beyond a simple accounting of women's or men's roles

42. Jodi Dean, *Aliens in America: Conspiracy Cultures From Outerspace to Cyberspace* (Ithaca, NY: Cornell University Press, 1998); Debra Benita Shaw, "Bodies Out of This World: The Space Suit as Cultural Icon," *Science as Culture* 13, no. 1 (March 2004): 123–144.

to consider how ideas about gender are embedded in customs, organizational structures, and social practices.[43]

The construction of masculinity is just as important as the construction of femininity. In *Astro Turf*, her memoir of her father, a 1960s Jet Propulsion Laboratory engineer, M. G. Lord's deeply personal story also offers a model for a nuanced analysis of the constructions of gender at NASA Centers. Lord explores the rocket engineer as an archetype of 1960s masculinity, a stereotype which she acknowledges "no human person can ever fully embody. The buzz-cut cowboys of Mission Control, homogenous as a Rockette kick-line, were a cold-war fiction, along the lines of other cold-war fictions—the notion, for instance, that hard-drinking, womanizing test pilots, when selected to be astronauts, metamorphosed into temperate family men." Lord's reflections demonstrate that a monolithic masculinity did not exist. Rather, different archetypes of masculinity existed in flight control, or planetary probe engineering, or the astronaut corps: constructions of masculinity that were specific not only to a particular time and place, but also to different jobs. More so, she illustrates in easily comprehensible prose how abstract constructions of masculinity had real effects even though individual men did not conform to the stereotypes.[44]

Analyses of masculinity are also being developed in histories of the images of astronauts. Roger Launius's ongoing reevaluation of the Apollo astronauts in myth and memory offers an insightful analysis of the men's personal backgrounds. With only one exception, NASA's Apollo astronauts were working-class or middle-class men who benefited from military service and the GI Bill—a story that mirrored the postwar American dream, the ideal of the best that America had to offer. The cultural story told by Apollo's models of masculinity provides a marked contrast with the characterizations observed when the nation mourned the *Columbia* astronauts. In that case, the reaction to the *Columbia* tragedy represented a little-noticed but significant shift in the way that astronauts have been depicted. More than just the absence of the previously disproportionate attention to the female members of the crew (as Penley noted after the *Challenger* disaster), the aftermath of the *Columbia* loss included a noticeable focus on the male astronauts as husbands and fathers. The *Columbia* coverage revealed a new conceptualization of men as active, nurturing parents, not just as "family men" (a term that describes a kind of dependability that serves as a workplace asset but which said little about a man's real role as an integral part of his family's life). In both examples, the images of the astronauts reflect the cultural context in which they lived.[45]

43. Constance Penley, *NASA/TREK: Popular Science and Sex in America* (New York: Verso, 1997).

44. M. G. Lord, *Astro Turf*, p. 16.

45. Roger D. Launius, "Heroes in a Vacuum: The Apollo Astronaut as Cultural Icon" (presented at the Organization of American Historians 2005 Annual Meeting, San Jose, CA, 3 April 2005);

continued on the next page

A practical model for this kind of wide-ranging gender analysis can also be found in some recent work in diplomatic history. Frank Costigliola's close reading of George Kennan's famous long telegram advocating containment noticed that Kennan cast the Soviet Union and the United States in gender-laden metaphors. Costigliola argues that Kennan's appeal to cultural ideas about proper gender roles reinforced his arguments about necessary U.S. action. Likewise, Robert Dean offers a very useful analysis of the particular brand of upper-class, White masculinity that defined and drove John F. Kennedy and his New Frontiersmen. Examining White House decision-makers throughout the 1960s, Dean points out how gendered metaphors of strength and weakness underlay foreign policy-makers' understanding of international situations, specifically the Cold War. Dean shows how the gendered metaphors used to understand foreign policy led to real Cold War decisions, bringing ideas about gender into crucial national actions. In both cases, gender does not mean "women" but rather the social construction of both masculinity and femininity.[46]

In much the same way, critical race theory has demonstrated that race also requires a more complex treatment than the oversimplified American preoccupation with rigid Black/White racial categories. Critical race theory demonstrates that race is mutable, not biologically determined, and yet nonetheless real. Because race categories have been historically constructed and carried (and still carry) real consequences for people of all colors, the construction of those categories and what they meant at a particular place and time provide the best way to analyze their historical influence and multiple meanings.

The best examples of this kind of work are being carried out in cultural studies. In *Astrofuturism: Science, Race, and Visions of Utopia in Space*, De Witt Douglas Kilgore employs well-grounded race analysis as a part of his examination of the connections between space science fiction and utopian visions of the future set in space. Another author analyzing race in space-themed popular culture is Daniel Bernardi, whose work on *Star Trek* investigates how America's obsession with race played out in the multiple incarnations of Gene Roddenberry's cult hit television show and its many spin-offs. For Bernardi, "'race' refers to a multifaceted, omnipresent but utterly historical category of meanings." How these meanings are constructed in particular times and places

---

continued from the previous page

Margaret A. Weitekamp, "Mourning Men and Women: Gender in the Coverage of the Space Shuttle Columbia Accident and Other Space Tragedies" (presented at the Organization of American Historians 2005 Annual Meeting, San Jose, CA, 3 April 2005).

46. Frank Costigliola, "'Unceasing Pressure for Penetration': Gender, Pathology, and Emotion in George Kennan's Formation of the Cold War," *Journal of American History* 83, no. 4 (March 1997); Robert D. Dean, *Imperial Brotherhood: Gender and the Making of Cold War Foreign Policy* (Amherst: University of Massachusetts Press, 2003).

informs his work, allowing his analysis to account for changes in race relations over time. As a result, Bernardi's work avoids reinforcing racial categories.[47]

Having more complex, theoretically grounded conceptions of race also allows scholars to examine the social and historical construction of whiteness. In addition to the historians documenting the contested construction of White racial identity in the United States, other scholars have been exploring the impact of White privilege: the unearned and usually unnoticed advantages that accompany being White in America. For space history, an awareness of whiteness as a contested identity, which carried real meaning for people's day-to-day lives, opens new topics for investigation. For instance, it would be very interesting to examine a place like Huntsville, Alabama, where whiteness took on several different historical meanings. By the 1950s, the Army Ballistic Missile Agency in Huntsville welcomed German rocket scientists, who had been brought into the U.S. through Project Paperclip. These men found themselves living and working in a state just beginning to wrestle with the fundamental questions raised by the Civil Rights movement. Little race history presents itself to be written when the focus remains narrowed to documenting the historical presence of African American workers. But if one considers the multiple and varied meanings of whiteness, this history offers intriguing possibilities for reinvestigating a formative site for space history.[48]

One of the reasons that space history has not always embraced all of the aspects of the New Social History is that many scholars dismiss the focus on race, class, ethnicity, and gender as forced or unnecessary due to the lack of women or minorities in a field. The previously ignored women's stories have been largely uncovered and already told, the argument goes. Having few people of color working in various space programs means that little race history presents itself to be written. Few labor problems beg for a class history analysis. But when considering critical theory, the question becomes, not how does one write an appropriately attentive history of each race or ethnicity, but rather, how did the space program deal with race or ethnicity? Not where are the women, but how did the space program deal with gender for both men and women? Not where are the gays, but why is the space program so relentlessly straight (and, for that matter, so reluctant to broach the topic of sexuality at all)?

Such questions are relevant even if the identities being analyzed were not noticed or commented upon at the time. Indeed, one of the defining

47. De Witt Douglas Kilgore, *Astrofuturism: Science, Race, and Visions of Utopia in Space* (Philadelphia: University of Pennsylvania Press, 2003); Daniel Leonard Bernardi, Star Trek *and History: Race-ing Toward a White Future* (New Brunswick, NJ: Rutgers University Press, 1998), p. 15.

48. Matthew Frye Jacobson, *Whiteness of a Different Color: European Immigrants and the Alchemy of Race* (Cambridge, MA: Harvard University Press, 1999); Peggy McIntosh, "White Privilege: Unpacking the Invisible Knapsack," in *Women: Images & Realities, A Multicultural Anthology*, ed. Amy Kesselman, Lily D. McNair, and Nancy Schniedewind, 3rd ed. (New York: McGraw-Hill, 2003), pp. 424–427.

Dr. Wernher von Braun greeting a crowd at the Gulf South State Fair in Picayune, Mississippi, in October 1963. *(NASA photo no. GPN-2000-000538)*

characteristics of privilege is obliviousness. White privilege, for instance, includes the assumption of whiteness as the norm, a condition that does not need to be named (in contrast to the way that Blackness, for instance, does not go unnamed). Even though participants did not comment on the impact of whiteness or masculinity in the historical moment, the contemporary social construction of those identities continued to shape historical actors' experiences. The insight that all history contains gender, race, ethnicity, and class opens up new possibilities for integrating these elements into the ongoing discussions of technologies and politics in any space history.

One of the admitted drawbacks of critical theory is the jargon that accompanies it. As one teaching Web site suggests, "The hardest part of understanding and working with critical theory is grasping and using the new vocabulary, but, as with all languages, the new vocabulary will empower you and enhance your exposition of already existing thoughts and ideas."[49] I disagree. The concepts and insights of critical theory empower scholars. The vocabulary can be cumbersome and obfuscating. The examples offered above, however, demonstrate that critical theory can be employed in the service of an historical analysis while still using plain language. Keeping in mind the importance of narrative and craft in the writing of history will allow space historians to integrate these insights into readable histories. Critical theory does not offer all of the answers for the development of space history, but sampling from this toolbox can move the field forward.

49. Dino Felluga, "General Introduction to the Site," *Introductory Guide to Critical Theory*, updated 28 November 2003, *http://www.purdue.edu/guidetotheory/introduction/* (accessed 16 February 2005).