

CHAPTER 22

“RACISM, SEXISM, AND SPACE VENTURES”: CIVIL RIGHTS AT NASA IN THE NIXON ERA AND BEYOND

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Race and gender are almost invisible aspects of the early Space Age. The civil rights movement, the women’s movement, and early spaceflight occurred simultaneously, but they are normally analyzed as if they occurred in separate universes. Realities were different; there was a social history of the Space Age. Exclusions of women and racial minorities from key portions of America’s civilian space effort have had major effects on the political credibility of spaceflight.

Recent books on how the U.S. Astronaut Corps stayed closed to women in the late 1950s and early 1960s, and about how it opened to women of all races and minority men after 1978, tell part of this story. But the political struggles within and around NASA that made such openings a political necessity remain unknown. This essay addresses the fight to make America’s space program—like America itself—more diverse and inclusive.

NASA’S TROUBLES

Late in 1973, NASA was an agency in budgetary, policy, and staffing trouble. Efforts to gain public or political support for a human mission to Mars had failed resoundingly in 1969 and 1970. As the Apollo lunar program ended in December 1972, NASA was losing no less than one-third of its civil service workforce. Between 1965 and 1975, the Agency also lost half of its budget, in purchasing power terms. In national opinion polls, only foreign aid had less support than space exploration; even welfare spending fared better.¹

1. George M. Low, personal notes, “Fiscal Year 1972 . . . Discussions,” pp. 13–14, 18 July 1970, Box 27, Rensselaer Polytechnic Institute Archives, Troy, New York (hereafter designated “Low/RPI”); Howard E. McCurdy, *Inside NASA: High Technology and Organizational Change in the U.S. Space Program* (Baltimore, MD: Johns Hopkins, 1993), esp. p. 124ff; Mark E. Byrnes, *Politics and Space: Image-Making by NASA* (Westport, CT: Praeger, 1994), p. 115.

A major reason for NASA's difficulties was that the society around it was changing. An era of external cold war military and diplomatic concerns was giving way to an era dominated by domestic social and economic issues. Chief among these were the fast-paced rise of environmentalism, the women's movement, and the African American civil rights movement. Every recent poll, NASA's George M. Low noted privately as early as July 1970, showed that space and national defense had little appeal. American society was opening up to major new political constituencies in a fashion not seen in almost 40 years.²

By October of 1973, Washington, DC, and the nation beyond it were also in the midst of the wrenching Constitutional crisis called Watergate. In June, former White House Counsel John W. Dean implicated Republican President Richard M. Nixon in a conspiracy to obstruct justice regarding political spying and sabotage carried out against his Democratic and other enemies. In July, investigators for a special prosecutor's office created by Congress uncovered the existence of a White House taping system that could confirm or disprove Dean's charges. Political stonewalling and judicial guerilla warfare then commenced in earnest after Nixon refused to provide access to unsanitized versions of the official records of this presidency.³

Finally, accumulated pressures caused multiple political faults. First, on 10 October 1973, Vice President Spiro T. Agnew resigned over a bribery scandal. As one of Nixon's key partisan warriors against "radical liberals" surrendered, Nixon himself counterattacked. From 15 to 19 October, Nixon demanded that Special Prosecutor Archibald M. Cox cease requiring unedited White House tapes. After Cox refused, Nixon fired him in the "Saturday Night Massacre" of the 20th of October. In a pre-Internet world, 250,000 to 300,000 telegrams then cascaded into Washington, demanding Nixon's impeachment for high political crimes and misdeeds. The mood in Congress was grim. *The New York Times* and major regional papers editorialized that Nixon should resign, and *The Washington Post* called for impeachment. *Time* magazine, long a Nixon supporter, sadly noted he had "irredeemably lost his moral authority, the confidence of most of the country, and therefore his ability to govern effectively."⁴

Until precisely this point, NASA had avoided any connection with the dangerous and polarizing politics of Watergate. But, on the 11th of October, one day after Agnew's resignation and as the battle between Nixon and Congress, the courts, and the special prosecutor's office peaked, NASA performed a "Nixonesque purge"

2. Low, "Fiscal Year 1972 . . . Discussions," pp. 13–14; Samuel Lubell, *The Future of American Politics* (New York: Doubleday, 1965 ed.) and Samuel Lubell, *The Hidden Crisis of American Politics* (New York: W.W. Norton & Co., 1970) chart the sometimes explosive politics of race.

3. Kim McQuaid, *Anxious Years* (New York: Basic Books, 1989), pp. 232–246 provides a succinct chronicle. See also Stanley Kutler, *The Wars of Watergate* (New York: Alfred A. Knopf, 1990), esp. p. 390ff.

4. Three good sources for Watergate are James Doyle, *Not Above the Law: The Battles of Watergate Prosecutors Cox and Jaworski* (New York: Morrow, 1977); Elizabeth Drew, *Washington Journal: The Events of 1973-1974* (New York: Random House, 1975); and Gladys and Curt Lang, *The Battle for Public Opinion: The President, the Press, and the Polls During Watergate* (New York: Columbia, 1982), esp. pp. 99–105.

of its own. In doing so, it threw itself into the firestorms of the final year of Nixon’s plagued presidency. Ironically, it also began a process of political protest and oversight that opened up the U.S. civilian space program to women and to racial minorities.⁵

THE “NIXONESQUE PURGE”

The occupational desegregation process began when NASA fired Mrs. Ruth Bates Harris, the highest-ranking woman in the Agency, for submitting a private report to NASA Administrator James Fletcher stating that NASA’s belated equal opportunity program was “a near total failure.” NASA still employed fewer racial minorities and women than any other agency in the federal government. What women it did hire were almost all clustered in dead-end clerical jobs, and still nothing had been done to open the Astronaut Corps to anyone but white men. “Without denying the validity of the materials in the report, the agency fired its principal author,” noted an indignant *Washington Post* editorial of November 24. Despite Fletcher’s statements that NASA understood and was dealing with civil rights in employment problems for previously excluded or discriminated-against groups in its largely Southern installations, *The Washington Post* (located in a city which had grown from half to two-thirds African American in the 1960s) was not impressed. “Institutionalized racism and sexism” existed throughout NASA, it concluded. “[N]either simple pieties nor eloquent declarations of principle” would change that fact. *The Washington Post* illustrated this by quoting a NASA Headquarters spokesman who “made a large point of the fact that the agency official who [most immediately] recommended Harris’s dismissal was himself black”—“physically blacker than Mrs. Harris,” he said.⁶

NASA was now in major political trouble with no strong president to protect it. Its rocky ride through the new politics of America in the 1970s was about to get rockier still. How had it all begun? Basically, an elite agency began coming to social understandings late; when it did, it proceeded to address them in a half-hearted and ambivalent fashion. Not feeling it had much to learn, it denied that problems—or solutions—existed.⁷

5. Recent books about the abortive early involvements of women in the space program include Martha Ackmann, *The Mercury 13: The Untold Story of Thirteen American Women and the Dream of Space Flight* (New York: Random House, 2003); Margaret A. Weitekamp, *Right Stuff, Wrong Sex: America’s First Women in Space Program* (Baltimore, MD: Johns Hopkins University Press, 2004); and Bettyann Holtzmann Kevles, *Almost Heaven: The Story of Women in Space* (New York: Basic Books, 2003) and the revised second edition (MIT Press, 2006), which extends the story on into the era of the first female astronauts of the 1980s and 1990s; see also David J. Shayler and Ian A. Moule, *Women in Space—Following Valentina* (Chichester, U.K.: Springer-Praxis, 2005).

6. “Racism, Sexism, and Space Ventures,” *The Washington Post*, 24 November 1973: p. A14. For the increase in African American population in Washington, DC, in the 1960s, see *Historical Statistics of the United States: Colonial Times to 1970, Volume 1* (Washington, DC: U.S. Government Printing Office, 1975), p. 26.

7. One way to understand how visible and important was the case started by the Ruth Bates Harris firing is to see how many stories exist about her, in whole or part, in the online index to *The Washington Post*. From 1965 to 1985, this number totals 222. See <http://pqasb.parchiver.com/washingtonpost/search.html?nav=left> (accessed 18 January 2005).

NASA ignored social issues such as affirmative action (compensatory activity for those previously excluded from occupations or training by rules or custom) for as long as it could. It was not alone. *The New York Times*, *Newsweek*, and ABC News all discriminated against and excluded women from many jobs, just as television news stations generally refused to hire female reporters of any hue throughout the early 1970s. 1968 through 1971 nevertheless marked a watershed in enforcement of civil rights in employment laws for women and racial minorities in both the private and public sectors.

Further, in 1971 the Supreme Court, in the *Griggs v. Duke Power Company* case, enunciated a clear compensatory action and preferential treatment argument. A previously segregated Southern utility was using competency tests that had a “disparate impact” on minority groups. The court ruled it could not do so unless the tests had a very clear relationship to advertised jobs. “Business necessity” claims for minimum educational attainments or literacy levels were not enough. No intent to discriminate against individual applicants needed to be proved if a pattern of group exclusion was demonstrated. The burden of legal proof, bluntly, was shifted from the historically excluded worker to the employer. Given the very long history of occupational exclusions and low funding for segregated African American schools in Southern states, the utility had to make up for the effects of past discrimination in the present and the future.⁸

Most NASA installations were located in the apartheid American South. The aerospace sector of the economy was also no stranger to job discrimination. A Wharton School report of 1966 noted that African Americans were simply excluded from the aviation industry until World War II and very rarely achieved higher occupational standing thereafter. Just as there were no African American aviators until the wartime Tuskegee Airmen proved to segregationists that African Americans were mentally capable of flight, pre-1941 anti-African American policies were not disguised in corporations. African Americans pushed brooms; whites built airplanes. In the Apollo era of the 1960s, one-third of 1 percent of managers and seven-tenths of 1 percent of professionals in the 60 percent of firms supplying data were African American. The largest wartime and cold war changes, most pushed by unions such as the United Auto Workers, were in semi- and unskilled labor ranks, where 8 percent and 14 percent of workers, respectively, were African American. Office and clerical staff (2 percent) and skilled workers (3 percent) lagged badly, compared with the 20 percent of broom-pushers who were African American in 1966. Aerospace executives generally stated that “direct experience” was essential to success in their industry, while making few, if any, efforts to upgrade such minorities or women as they had already hired.⁹

8. By far the best survey of affirmative action is Nancy MacLean, *Freedom Is Not Enough: The Opening of the American Workplace* (New York: Russell Sage Foundation and Cambridge, MA: Harvard University Press, 2006), esp. pp. 108–127, 140–141. For *Griggs*, see Herman Belz, *Equality Transformed: A Quarter Century of Affirmative Action* (New Brunswick, NJ: Transaction, 1990), pp. 52–54, 81–85.

9. Herbert R. Northrup, *The Negro in the Aerospace Industry* (Industrial Research Unit, Wharton School, University of Pennsylvania Press, 1966), p. 17ff, esp. n. 29.

NASA reflected the mindsets and occupational patterns of the sector of the economy from which most of its engineers, scientists, and technical managers came. Despite a brief “Rosie the Riveter” interlude during World War II, (white) women disappeared from aerospace—except as clerks and typists—postwar. Women of any race were also not normally admitted to technical schools or to undergraduate or graduate training in engineering and the physical sciences until the late 1960s without intense personal effort. Female engineering Ph.D.’s, accordingly, were less than 4 percent of the total even 25 years after Sputnik. Levels of 10 percent weren’t reached until 1990. In that latter year, by comparison, 40 percent of Ph.D.’s in biology and 50 percent in the social sciences and humanities were women. African Americans, meanwhile, still only earned 2 percent of all doctorates in all fields of science and engineering in the 1990s, and only 5 percent of the bachelor’s degrees in aerospace, electrical, and mechanical engineering specialties of prime interest to NASA in 2002, while Native Americans and Hispanics were as low and lower.¹⁰

The effects of the lags in both the aerospace sector and in physical sciences and engineering education could be seen in NASA’s approach to race and gender issues. Until September 1971 (in the wake of *Griggs*), NASA had no systematic civil rights element in its employment program at all, even though three-quarters of its facilities were located in Southern states, including Virginia, Alabama, Texas, Louisiana, Florida, and Mississippi. Instead, NASA’s director of personnel in Washington carried out tasks “on a part-time basis.” The labs where most of NASA’s people worked, meanwhile, were generally devoid of any organizational structure, lines of responsibility, or policy guidelines regarding affirmative action.¹¹

The ad hoc approach, however, was no longer enough because, also in 1971, groups such as the Women’s Equity Action League, the NAACP Legal Defense Fund, and the National Organization of Women banded together to bring successful suits against for-profit and nonprofit organizations accepting federal money in any form. Suddenly and decisively, elite meritocracies such as Harvard University and

10. House Committee on Education and Labor, *A Report on Equal Employment Opportunity and Affirmative Action in the Southern California Aerospace Industry*, 100th Cong., 2d sess., June 1988, pp. 46–52. The first investigations of hiring and promotion of racial minorities and women in the aerospace industry by this House committee began in 1975, immediately after the Harris case was concluded. See U.S. Department of Education, *Digest of Education Statistics—1997* (Washington, DC: U.S. Government Printing Office, 1999), pp. 318–320; National Science Foundation, *Science and Engineering Degrees by Race and Ethnicity [and Gender] of Recipients* (Arlington, VA: NSF, 2000).

11. George M. Low, “Corrected Draft of Forthcoming Congressional Testimony for EEO Head Dr. Dudley McConnell Dated January 10, 1974,” Box 67, file 4, Low/RPI; W. Henry Lambright, *Powering Apollo: James E. Webb of NASA* (Baltimore, MD: Johns Hopkins University Press, 1995), p. 133, and an accompanying file of clippings from *The Huntsville [Alabama] Times* at the NASA History Office, Washington, DC (hereafter “NHO”). Lambright’s brief discussion of race relations and NASA is almost unique. Normally, a single anecdote suffices. See, for example, Walter McDougall, . . . *the Heavens and the Earth: A Political History of the Space Age* (New York: Basic Books, 1985), p. 412.

the University of Michigan were in the same legal position as any of the 10 major integrated aerospace contractors at that time. By 1972, Congress further extended the scope of affirmative action when it ordered all executive-branch agencies, including NASA, to obey the same civil rights employment rules now mandated on private firms and state governments.¹²

A “HARLEM PRINCESS” COMES TO NASA

Accordingly, NASA’s newly installed Administrator James Fletcher started off his tenure as the fourth leader of the U.S. civilian space program with bold moves on the civil rights front. On 24 August 1971, several months after he assumed office, a press release signed by Fletcher announced that a 52-year-old African American woman,



Ruth Bates Harris, would become NASA Headquarters’s new Director of Equal Opportunity. Harris would “provide direction” to all civil rights in employment programs for all the “approximately 29,000 NASA Civil Service employees.” This would include the top managers at all of NASA’s far-flung labs. She would also oversee “contract compliance”: the hiring of women and minorities by the many private firms providing products and services to NASA facilities. The new head of an agency whose “social center of gravity was exceedingly conservative” had just acted decisively.¹³

Ruth Bates Harris, who died in 2004, “Courtesy of University of Kansas Libraries”

12. Margaret W. Rossiter, *Women Scientists in America: Before Affirmative Action, 1940–1972* (Baltimore, MD: Johns Hopkins University Press, 1994), pp. 377–380; Becky Thompson, “Multicultural Feminism: Recasting the Chronology of Second Wave Feminism,” *Feminist Studies* (Summer 2002), p. 337ff; Maren L. Carden, *The New Feminist Movement* (New York: Russell Sage Foundation, 1974), esp. pp. 135, 141; Jo Freeman, *The Politics of Women’s Liberation: A Case Study of an Emerging Social Movement and Its Relation to the Policy Process* (New York: McKay, 1975), esp. pp. 49–67. Freeman and Carden make clear differentiations between feminist generations. For a good survey of how African American women related to the civil rights and women’s movements, see Paula Giddings, *When and Where I Enter: The Impact of Black Women on Race and Sex in America* (New York: Morrow, 1984).

13. James C. Fletcher, “Director of Equal Employment Opportunity Memo Dated August 24, 1971,” EEO (Equal Employment Opportunity)—Very Sensitive file, George M. Low papers; alphabetical files, NHO. (Hereafter “Low/NHO”); Kevles (2003), p. 204; Ruth Bates Harris, *Harlem Princess: The Story of Harry Delaney’s Daughter* (New York: Vantage Press, 1991), p. 104.

The woman Fletcher hired was a self-described “Harlem Princess” whose first marriage had been to a Tuskegee Airman. An honors graduate of Florida A&M University, she had gone on to earn an M.B.A. with a specialization in personnel and industrial relations from New York University. What Fletcher called her “distinguished career in human relations” included service as the executive director of the District of Columbia Commission in Human Relations, a civil rights oversight and implementation group. Her nine-year tenure at the DC Commission began with a successful push to get *The Washington Post* to stop carrying racially restricted housing ads, and moved on to an increasing variety of housing, community–police relations, and other work. Through several “long hot summers” of racial discontent in the late 1960s, Harris was among those who exercised front-line leadership in restoring peace and stopping (or avoiding) riots. Because inhabitants of the nation’s capital had only gotten the right to vote for local government in 1967, Harris not only became a de facto affirmative action officer for city government in a majority-African American metropolis, she also learned to work well with the Congress and senators of all political persuasions who were the overseers of DC government. As the Congressional Black Caucus was formed (in 1969), as *Ms.* Magazine first began publishing (in 1971), and as the Equal Rights Amendment first passed both houses of Congress and Congresswoman Shirley Chisholm became the first woman—and first African American—to seek the nomination of a major party for the presidency (in 1972), Harris worked hard to understand and guide quiet revolutions in race and gender relations. “I’m never just talking about people being nice to each other. I’m talking about changing the system,” she told a civil rights oral history interviewer for Howard University in 1971. “We ought to have one big coalition. . . [of African Americans and] . . . all our minorities [with which] we could change anything in this system.”¹⁴

Ruth Bates Harris was a bridge-builder, not a wild-eyed or other radical. In 1969, for example, she left the DC Commission to become the human relations director for the public school system of Montgomery County, Maryland. In this very affluent county, only 4 percent of the populace was then African American and only 7 percent nonwhite. Her constituents included top policy makers in Washington

14. Harris, *Harlem Princess*, pp. 247–248. Two oral history transcripts of Harris’s career at this time exist. One is dated 16 March 1971 and the other is undated, circa 1971. The 44-page and 36-page transcripts are both available in the Ralph Bunche Civil Rights Collection at the Moorland-Spingarn Research Center of Howard University, Washington, DC. The data regarding Montgomery County’s economic status and racial composition come from the first Harris oral history, p. 36. Hereafter, the transcripts will be designated “Harris (1971-1)” and “Harris (1971-2).” For profiles of Harris in this period, see Carolyn Lewis, “Her Job: To Pass the Peacpipe,” *The Washington Post*, 10 October 1967: pp. C1, C4; Paul Richard, “Ruth Harris is Named Head of Human Relations Council,” *The Washington Post*, 21 May 1966: p. B1; “Harris (1971-1),” pp. 31, 36; “Harris (1971-2),” pp. 20, 40; Harris, *Harlem Princess*, pp. 142–220, 183ff. *The Washington Post* coverage of Harris began in 1965 and was regular by the 1968–1970 period, and Harris was honored by the NAACP on several occasions.

and NASA staff from the agency's Goddard Space Flight Center in neighboring Prince Georges County, Maryland. It was via her connections with Goddard that NASA Headquarters heard of her and hired her.¹⁵

Once she was vetted, security cleared, and hired, however, problems with Harris's posting immediately developed. In fact, all this started before she had even officially left her post at the Montgomery County school system to report to work at NASA. Only one week after publicly announcing Harris's hiring as a change agent with power, Fletcher demoted Harris and rehired her as an assistant deputy director rather than a director. Instead of enforcing change in an era of *Griggs* within a largely Southern agency, Harris reported to a white male overseeing private companies. Instead of regulating NASA, and in particular directors and deputy directors of NASA labs, Harris was sidetracked into an office dealing only with NASA contract employees and firms. Enforcing virtue upon itself had very quickly ceased being a NASA priority.¹⁶

Harris's immediate demotion before she even arrived for work at NASA Headquarters on 4 October 1971 was a warning signal. It was also what NASA Deputy Administrator George Low later privately admitted was "the weakest part" of NASA's official position. Nobody at NASA Headquarters ever accepted responsibility for the action. Lower echelons passed the buck to a man who had died.¹⁷

What had happened? Here, organizational culture and cultural context apparently interwove. NASA knew it had to do something about including hitherto largely unrepresented groups, but it also wasn't comfortable getting started. NASA Headquarters staff also might have expected Harris to be a patient schoolteacher rather than the street-smart civil rights implementer that she was, networked into official Washington and to organizations such as the NAACP. One organizational statistic was eloquent: eight of NASA's dozen major facilities had created equal employment/affirmative action offices just before Harris was hired. Four of the eight Center affirmative action people only worked part-time; all eight Center people were under the administrative control of lower-level procurement officers; and no fewer than six of the eight Civil Rights in Employment teams at NASA's labs were all-white.¹⁸

15. Harris, *Harlem Princess*, pp. 247–248.

16. Constance Holden, "NASA: Sacking of Top Black Woman Stirs Concern for Equal Employment" *Science* (23 November 1973): pp. 804–807, esp. 804. The bureaucratic paper trail is in Senate Appropriations Committee, Subcommittee on HUD, NASA and other Independent Agencies, *Hearings before a Subcommittee of the Committee on Appropriations . . . on H.R. 15572*, [the NASA Appropriation Act], Part 1, 93rd Cong., 2d sess., 1971, pp. 6–33, esp. pp. 26 and 33 (regarding how Harris's job description was changed in August of 1971). (Hereafter "Senate Appropriations Committee [1974].")

17. George M. Low, Box 108, personal notes, "EEO," 25 November 1973, pp. 2–3, Low/RPI.

18. See "Director, Equal Opportunity Programs to Mr. Harnett," 5 February 1971, in Senate Appropriations Committee (1974), pp. 20–21.

NASA, then, talked about wanting “the best equal opportunity program in the federal government,” but using part-time and all-white organizations to do it was naïve. NASA employed fewer minorities and women than any other agency in government. It claimed this was because of its elite and expert technical structure, but far from everyone at NASA was a rocket scientist. This disparity between NASA and other federal agencies also grew even as African American professionals sought out government agencies as employers because those agencies also most often obeyed federal civil rights laws. NASA’s own statistics showed that it did as well as private corporations in employing minorities and women in the technical half of its operations (at 3.5 percent), but NASA’s leaders did not go on to ask why NASA employed only 6 percent of racial minorities in the nontechnical half of its operations. People like Harris were about to pose such uncomfortable questions.¹⁹

CULTURE SHOCK

As the newly arrived Ruth Bates Harris began investigating the human side of space exploration, she also almost immediately transgressed the unwritten folkways of a high-technology agency. At NASA, technical “missions” mattered; personal (and personnel) issues did not. Number Two man in NASA’s hierarchy and Chief “inside” Administrator George Low, for example, was so private a man that he never had a listing in *Who’s Who in America* during his NASA years, never spoke with reporters, and never let his closest aides at the Agency know key parts of his background (which included being an Austrian Jewish refugee from Hitlerism).²⁰

One reason for Low’s cloak of secrecy about himself shared offices at NASA Headquarters with him when Ruth Bates Harris arrived in 1971. Wernher von Braun, NASA’s premier missile man, had provided weaponry to a regime that had deemed the Lowensteins of Austria subhuman and deprived them of livelihood, homeland, and loved ones. Low, presented by von Braun’s most recent biographer as personally and professionally resentful of von Braun, said nothing publicly against him. His favorite managerial advice was for people to “put their emotional hang-ups aside.” To Low, like von Braun, “identity” issues were off-limits.²¹

19. “Harris (1971-1),” pp. 31, 36; “Harris (1971-2),” pp. 20, 40; Harris, *Harlem Princess*, pp. 142–220.

20. George M. Low, personal notes, “Meeting Record on February 6-7, 1974: TSC Deputy Directors Council Meeting,” pp. 2–4, 19, Box 67, Low/RPI; Shirley Molloy and Professor Stephen E. Wiberley interview with the author, 5 October 2004, Troy, New York.

21. Bob Ward, *Dr. Space: The Life of Wernher von Braun* (Annapolis, MD: Naval Institute Press, 2005), esp. pp. 202–203; “The Groundling Who Won,” *Time* (3 January 1969): p. 13. The rare *New York Times* coverage of Low contains minimal information. The NASA History Office files on Low are similarly sparse. Low appeared in *Who’s Who* only once, shortly before his death in 1985. Ernst Stuhlinger and Frederick I. Ordway, *Wernher von Braun: Crusader for Space: A Biographical Memoir* (Malabar, FL: Krieger Publishing Company, 1994), pp. 300–303; Francis T. Hoban, *Where Do You Go After You’ve Been to the Moon?* (Malabar, FL, Krieger, 1997) esp. pp. 53, 57, 58–59, 155, 192; Hoban uses the phrase “catechism, not reformation” to describe Low’s approach to *people-centered* change within NASA (p. 192).

Ruth Bates Harris's approach to von Braun's past was quite different. She didn't intimidate easily and she was forceful. So, after reading in a newspaper story in 1971 or 1972 that von Braun had used slave labor to build rockets for the Nazis, she went straight to von Braun's office to ask him whether the story was true. "The silence between us," she recalled, "was deafening and awesome." Von Braun finally replied that there were journalistic distortions. Harris said it was not her role to judge but that she was going to refer the story to an "appropriate office" at Headquarters. Von Braun, Harris then recalled, was both sad and understanding. Neither he nor Harris, after all, needed any instruction about how racism was not restricted to Nazis. Indeed, according to Harris, von Braun pushed for affirmative action "with courage and conviction" at the Center he had previously headed in Huntsville, Alabama. No other top NASA official of the era earned such praises from her. Yet, in officially bringing up von Braun's past, Harris demonstrated more forthrightness than many of her contemporaries in NASA's administrative hierarchy were comfortable with.²²

PRESSURE BUILDS

Harris's problems involved more than frankness regarding prohibited subjects. She also brought uncustomary issues into policy making, via her connections with the Congressional Black Caucus and the NAACP. NASA, for instance, had hired Africans over racist apartheid government opposition at South African tracking stations in the 1960s. But apartheid customs such as Africans eating outside while whites monopolized dining facilities continued. Given that the large majority of Earth's population was not white, NASA might have to consider (as it eventually did) closing the stations.²³

"Political" ideas like this did not endear Harris to those who saw space exploration as an obvious good that did not require modification. But the major problem with Harris was that she wanted her original job back. She also wanted to do what she had earlier done at the DC Council on Human Relations: transform a junior administrative post into a prominent leadership role after networking within NASA and between NASA and civil rights and women's organizations.²⁴

In early 1973, 18 months after her arrival, Harris clearly began pushing top NASA leaders beyond their comfort zones as she tried to implement policy regarding all executive-branch agencies obeying the same affirmative action laws as private industry. New civil service implementation rules also required affirmative action directors within agencies to report *directly* to top administrators of government departments to accomplish this.

22. Harris, *Harlem Princess*, pp. 257–258.

23. Transcript of "An Interview with Diane Graham," Harambee program, WTOP TV, Washington, DC, 12 November 1973, 9:00 a.m., pp. 1, 4, Low/NHO; Harris, Hogan and Lynn to James Fletcher, 20 September 1973, Low/NHO, alphabetical files, "EEO—Very Sensitive" folder.

24. Belinda Robnett, *How Long? How Long?: African American Women in the Struggle for Civil Rights* (New York: Oxford University Press, 1997), esp. pp. 19–20, 190ff.

NASA could not just simply ignore Harris. It had 5.6 percent minority and 18 percent female employees in 1973, versus a government average of 20 percent minority and 34 percent female. But of the 4,432 women that NASA employed, only 310 were in science and engineering and just 4—including Harris—were in the highest civil service grades. NASA’s technical culture could and did claim that female and minority engineers were scarce. But NASA did no better at hiring more numerous female and minority lawyers or nontechnical professionals (3.7 percent) than scientists and engineers (3.6 percent) in this period. NASA hired more minority male janitors (69 percent) than the government-wide average of 56 percent. But it hired no women at all to do this work and it trailed in *all* other occupational categories, from pilots to guards. What Harris, NASA’s highest-ranking woman, was saying about opening up NASA jobs and occupational hierarchies was legitimate and principled.²⁵

NASA leaders, however, still didn’t want Harris to formulate or implement standards for the Agency. Instead, Fletcher and Low offered Harris a deal. They would raise her a level above that to which they had demoted her even before she arrived in office. She would be Number Two in a new equal employment opportunity (affirmative action) office and also Number Two in an office overseeing NASA contractors. She still would not report directly to either Fletcher or Low, nor would she be able to upgrade the inadequate affirmative action operations out in NASA’s Centers created just before her arrival. Harris didn’t like the offer, may have threatened to quit, and wanted her original job back.²⁶

To Harris, NASA began to look like the uninterested at Headquarters leading the uncommitted in the Centers. To George Low, Harris was an administrative lightweight lacking the qualifications expected of a nontechnical assistant (rather than deputy assistant) administrator. This made NASA’s original hiring of her doubly curious. Harris’s qualifications were also equivalent to those of the men who were the assistant administrators for public affairs and international affairs at Headquarters at the time.²⁷

By March of 1973, bureaucratic knives got whetted. Low privately commented that Harris’s affirmative action operation was a “dumping ground for poor people” who “could only say yes [to complaints] and not no.” Affirmative action, however, was “too low in the administrative hierarchy” and there was a “lack of management support and no leadership.” Low basically agreed with Harris’s administrative reasoning while arguing that she was a bad administrator.²⁸

25. “EEO Statistics,” 18 January 1974, Box 107, Low/RPI; “Senate Space Committee Hearings” (1974), pp. 64–65.

26. Low, personal note no. 105, 21 October 1973, pp. 1–2; Fletcher to all NASA employees (2 November 1973), pp. 2–3, both in Box 68, Low/RPI; Holden, “NASA: Sacking of Top Black Woman,” p. 805.

27. George Low, “Comments in November 14, 1973 Draft Letter to Senator Moss,” 19 November 1973, Box 35, Low/RPI (these men were, respectively, a Chicago businessman and a lawyer with the International Labor Organization).

28. Low to Fletcher, 15 March 1973, 3, Box 68; Low/RPI; Low, personal note no. 91, 14 April 1973, pp. 1–2, Low/RPI; Low, “EEO Contr Compl,” notes on the reverse of Low’s appointment book for 7 March 1973, Low/NHO; Low, personal note no. 91, 14 April 1973, p. 1, Low/RPI.

This meant Low had to find someone else to get more women and minorities hired, trained, or promoted within NASA. His eyes lighted on NASA's only African American in a high level (or "super-grade") scientific and technical position: Dr. Dudley McConnell of NASA's Scientific and Technical Information Office.²⁹ Two of Low's aides told him and Fletcher that McConnell "would not want the job," but Low persisted. Low, in fact, had hired McConnell into NASA as an aeronautical research engineer in Cleveland, Ohio, in October 1957. McConnell's personnel or civil rights experience was far less extensive than Harris's. He was also taken out of a senior science and technology position in which there were no other African Americans and put into an office where African Americans were not rare. But, in the end, McConnell agreed to accept the job Harris had originally been hired to do a year and a half earlier.³⁰

MCCONNELL VERSUS HARRIS

Crude racism played no part in George Low's decision, but the organizational culture of NASA clearly did. Low knew and trusted 16-year NASA man Dudley McConnell far more than he did M.B.A. and personnel/civil rights person Ruth Bates Harris. McConnell, wrote Low, understood the "problems of technical management" in aerospace. McConnell impressed a reporter for *Science* magazine who interviewed him as "soft-spoken, ingratiating, exceedingly articulate, and strong willed." McConnell also compared himself to a ship captain with "unruly crew members."³¹

Turbulence was inevitable, given that Harris was a popular administrator and McConnell definitely was not. Only four months after McConnell took over in April of 1973, Low received two strong oral and written criticisms of McConnell's managerial style from two departing staffers. McConnell didn't relate well to women, "went for appearances rather than substance," and was not communicating affirmative action "concerns to top management." Because "seven or eight" other staffers "might soon be leaving," Fletcher and Low both met privately with McConnell, after which Low privately concluded McConnell might indeed have problems with women and communicating concerns upward. Some of McConnell's difficulties were unintentional. For example, he used a little bell to summon secretaries, who then lampooned him as "Mr. Ding-a-ling" (a silly, affected person). But McConnell's major problem was that for the second time Ruth Bates Harris had now been denied the job for which she was originally hired. NASA's new civil rights in employment chief, moreover, refused some of Harris's early offers of cooperation.³²

29. For the best biography on McConnell, see Senate Committee on Aeronautical and Space Sciences, *Review of NASA's Equal Opportunity Program*, 93rd Cong., 2d sess., 24 January 1974.

30. Low, personal note no. 91, 14 April 1973, p. 2, Box 68, Low/RPI.

31. Holden, "NASA: Sacking of Top Black Woman," pp. 804, 806.

32. Low, personal note no. 100, 11 August 1973, pp. 1-2, Box 68, Low/RPI; Holden, "NASA: Sacking of Top Black Woman," p. 805.

Discussion therefore soon became argument. Harris and her supporters began to believe NASA would enforce nothing on balky Southern labs. They also knew that organizations such as the National Urban League and the National Organization of Women were displeased by longstanding exclusions of women and minorities from the Houston-based Astronaut Corps. What Harris would later call NASA’s “pasteurized and insulated from the real world” aspects, moreover, made it harder to interest the non-male and non-white in space programs. McConnell, for his part, moved slowly, avoided confrontation, and ordered his staff not to undermine him.³³

This is precisely what Ruth Bates Harris and two of her associates—Joseph M. Hogan and retired Air Force Colonel and Tuskegee Airman Samuel Lynn—did five months after McConnell’s too-gradualist tenure began. In September of 1973, the three sent an internal report to Fletcher they had prepared on their own time. In the process, they also did a bureaucratic end-run around McConnell’s sponsor, George Low.³⁴

The Harris-Lynn report was frank, insistent, and began dramatically. NASA’s efforts were “a near-total failure.” The agency was denying that problems existed to avoid having to address them. Minorities and women stayed clustered in the lowest civil service job ratings. Thirteen of the 35 total minority hires of fiscal year 1972 were brought in at the lowest pay scale of GS-2. Three NASA Centers had not hired any minorities to do anything in 1972, all Centers in the South—the Kennedy Space Center, the Marshall Space Flight Center, and the Manned Spacecraft Center. Despite cutbacks, these same facilities had hired 10, 24, and 22 people, respectively, that year.³⁵

Many considered affirmative action a “sham” at NASA because of uncommitted top management, “insensitive middle management,” and “unqualified, uncommitted persons” at NASA Centers. Some NASA installations simply were not going to hire African Americans or women or others until they were forced to. There was a “striking anomaly” between NASA’s technical genius and its social insensitivity. The only three females NASA had so far sent into space were two spiders and a monkey. “During an entire generation—from 1958 until the end of this decade—NASA will not have a woman or a minority astronaut in training”; this even as U.S. society was opening up to women and minorities in ways previously seen only during major wars that created labor shortages of white males. Dudley McConnell had demonstrated incapacity and “immaturity in relating to people” and should be removed. Then NASA’s human relations policies would begin to match its proven technical excellence.³⁶

33. Harris, *Harlem Princess*, esp. pp. 267, 262–264 (quote from p. 264); Senate Space Committee Hearings (1974), p. 88ff; Holden, “NASA: Sacking of Top Black Woman,” pp. 804–806, *passim*. For the astronauts issues, see, for instance, Martha Ackmann, *The Mercury 13*, pp. 176, 183, 191; Joseph Atkinson and Jay Shafritz, *The Real Stuff: A History of NASA’s Astronaut Recruitment Program* (New York: Praeger, 1985), esp. pp. 134–137.

34. Ruth Bates Harris, Joseph M. Hogan, and Samuel Lynn to Dr. James C. Fletcher, 20 September 1973, Low/NHO (three-page unpaginated cover letter).

35. *Ibid.*, Points II [p. 1] and IV [p. 2].

36. *Ibid.*, the final paragraph, the “Preamble” and the “Special Concerns: No Minority or Female Astronauts” sections.

NASA Administrator Fletcher listened to his frustrated affirmative action staffers. He said vaguely agreeable things about further absorbing their message. Then axes fell. Fletcher fired Harris, transferred Hogan, and told Lynn to work with McConnell or resign. Fletcher claimed the firing and disciplinary actions had nothing to do with policy recommendations, all of which were “already well documented.” Instead, in a four-page, single-spaced memo sent to all NASA Headquarters staff, Fletcher presented Harris as a “seriously disruptive force.” Though a good advocate, Harris was an uncompromising ideologue who had sabotaged McConnell and NASA. NASA’s minority and female hiring record was not one in which it could take pride, but the future would be a marked improvement over the past.³⁷

Harris was purged on 11 October 1973. For two weeks, things were quiet. Then the situation changed decisively after the 27th of October. In his private papers, Low made no connection whatsoever between Nixon’s purge of the Watergate special prosecutor on the 20th of October and NASA’s difficulties after Harris’s firing that involved NASA in far wider political struggles roiling all around it.³⁸

NASA’s timing, nevertheless, was awful. Its leaders could not conceive that anyone would doubt their actions or motives, but plenty did. *The New York Times*, *The Washington Post*, three Senate committees, major African American newspapers, and local Washington radio and TV stations all featured the Ruth Bates Harris story shortly after Fletcher fired her. NASA blithely walked into a journalistic tree-shredder. Its press was so bad that Fletcher’s office forwarded to Low a “much more elegant than usual” story about the case from *Science* magazine from 23 November 1973, which Low *should* read.³⁹

NASA’S POLITICAL BEATING BEGINS

The *Science* article showed just how badly NASA had flunked politically. The author, Constance Holden, found the charges that Harris was disruptive or radical to be overblown. “It is difficult to imagine,” she concluded, “that it took NASA two years to discover that the woman was a ‘divisive’ personality.” “Fletcher’s Nixonesque purge” had only “opened up a can of worms” at NASA, Holden said. Seventy headquarters staff had already protested the firing, and civil rights and women’s groups at several NASA Centers were pledging support for Harris. A group called MEAN (Minority Employees at NASA) had been formed to protest employment conditions. Most importantly, the NAACP Legal Defense Fund was about to take on the Harris case to establish legal precedent regarding executive-branch agencies obeying affirmative action laws.⁴⁰

37. Low, personal note no. 105, 21 October 1973, pp. 1–2; Fletcher to all NASA employees (2 November 1973), pp. 2–3, both in Box 68, Low/RPI; Holden, “NASA: Sacking of Top Black Woman,” p. 805.

38. Low, personal note no. 107, 13 November 1973, pp. 4–5, Box 67, Low/RPI.

39. “H” to Dr. Low, 20 November 1973, Low/NHO.

40. Holden, “NASA: Sacking of Top Black Woman,” p. 806; Holden, “NASA Satellite Project: The Boss Is a Woman,” *Science* (5 January 1973): pp. 48–49; “Harris, Mrs. Ruth Bates” biographical file, NHO (hereafter Harris/NHO). Part of the “radical” charge may have come from the dedication of the Harris, Hogan, and Lynn report to “those who have been victims of economic indignities” and “those who are indignant enough to do something about it.”

Things only got worse. An eventual 50 national organizations such as the National Conference of Catholic Charities and the National Organization of Women protested. So did prominent members of Congress. When Rep. Fernand St. Germain's (D-Rhode Island) request for an explanation of Harris's firing was simply ignored by Fletcher, St. Germain curtly wrote to Fletcher that his voting on NASA appropriations measures would be "equally unsatisfactory." The Congressional Black Caucus protested and two Senate committees started making serious noise about scheduling hearings.⁴¹

Accordingly, by early December James Fletcher badly needed proof of Harris's radicalism, so he sent Low and others off on a wild goose chase after he received a brief note stating, "We *Black* People do not want this Subversive person representing us—she is a known 'Trouble Maker.'" Today, NASA handles claims like this the way it handles claims that it is hiding the truth about UFOs—the claims are politely dismissed. Fletcher, however, pressed for evidence of subversive associations but Low—via deniable intermediaries—was able to come up with nothing.⁴²

As NASA chiefs belatedly realized the burden of proof about disloyalty might actually be on them, Harris gave interviews to reporters and her NAACP lawyers petitioned the U.S. Civil Service Commission against Harris's dismissal as an illegal reprisal. NASA leaders had presumed that Harris was a political appointee they could fire at will; her NAACP lawyers cogently argued otherwise. In a climate of Constitutional crisis, any presidential agency claiming *lèse majesté* was suicidal. So NASA retreated and started paying Harris her full salary while her status was being determined.⁴³

Simultaneously, Low was souring on the man he'd selected only six months earlier to run affirmative action. "Apparently," he noted privately late in December, "McConnell has all the right ideas but he is not pushing very hard insofar as implementing these ideas is concerned." Despite Low's encouragement, McConnell was "still very slow." "I think Fletcher and I will have to 'lead him by the hand' . . . until he can really run the show on his own," Low concluded.⁴⁴

41. Holden, "NASA: Sacking of Top Black Woman," p. 806; Ruth Bates Harris, *Harlem Princess*, pp. 261, 263–264; St. Germain to Fletcher, 12 December 1973, Low/NHO. The National Organization of Women (NOW) only belatedly protested Harris's firing. It provided Harris little or nothing in the way of financial or legal assistance. For NOW's "often chaotic" internal organization in its formative years, see Freeman, *The Politics of Women's Liberation*, p. 71ff. For NOW's after-the-fact protest, see Senate Space Committee Hearings (1974), pp. 98–99.

42. Fletcher to Low, 14 December 1973 and M. Johnson to James Fletcher, 30 October 1973, Low/NHO; Low to Fletcher, 14 December 1973, Low/NHO; Unsigned memo from Low, undated (circa December, 1973) regarding report from Bart Fugler regarding "Concerned Citizens for America" group, Low/NHO.

43. Holden, "NASA: Sacking of Top Black Woman," p. 806.

44. Low, personal note no. 110, 23 December 1973, p. 7, Box 67, Low/RPI. For Low's continuing belief that Harris was unqualified and his beginning awareness that he actually had to *prove* that point, see Low to "AD/Deputy Administrator," 19 November 1973, Box 35, Low/RPI.

By January 1974, NASA's yawning credibility gap got wider. NASA lawyers secretly told Low and Fletcher the Agency was probably going to lose its case against Harris and her NAACP Legal Defense Fund attorneys. It also faced the threat of class action suits from women and minorities. Crucial, here, was the unwillingness of those who had attacked Harris verbally to risk public exposure or legal repercussions. Despite requests from Low and Fletcher to repeat their charges to NASA (and NAACP) lawyers or to civil service representatives, they all refused.⁴⁵

Within three months, then, NASA's case against Ruth Bates Harris was in tatters. Blaming Harris wasn't going to work, so the Agency therefore had a "pressing need" to make some progress itself. In January, Low pushed all NASA Center Directors to hire "at least one minority or female at the executive level [apiece] within the next 6 months." Three Southern Center leaders in Texas, Alabama, and Florida refused, saying it was impossible to even begin. NASA had no operational and Agency-wide plan for recruiting or promoting women or minorities. NASA was being flayed in editorials in *The Washington Post* and elsewhere for trying to combat "institutionalized racism and sexism" with "simple pieties." Worse, NASA was by now headed for political appointments on Capitol Hill with three powerful Senate bodies. First on the list was Senator William Proxmire of Wisconsin and the Senate appropriations subcommittee he chaired, meeting on the 11th of January.⁴⁶

Senator Proxmire was trouble, and NASA leaders knew it. He'd worked with Harris often on District of Columbia governance issues in the 1960s. He had also been a notable critic of NASA for a decade and didn't care a whit for vague pieties. Accordingly, Fletcher and Low avoided testifying. Instead, they sent Dr. Dudley McConnell and two other managers in their places. Low, however, "... wrote Dudley's [preliminary opening] statement since his was rather weak."⁴⁷

Harris and her associates Hogan and Lynn, meanwhile, argued far more openly. Hogan said NASA's approach to hiring women and minorities was "calculated to provide the appearance of compliance while not doing so." Harris added that NASA was now trying to take credit for proposals, such as recruiting minorities and women into the Astronaut Corps, that she, Hogan, and Lynn had made—this after punishing them and then doing nothing to actually create such a recruitment program. Finally, they said, McConnell had begun his tenure as affirmative action

45. Low, personal note no. 111, 6 January 1974, pp. 6–7 and Low, personal note no. 126, 18 August 1974, p. 8, Box 67, Low/RPI.

46. Low to "AD/Deputy Administrator," 21 January 1974, Box 34, Low RPI; "Center Director's Meeting, December 10–11, 1973 . . ." (minutes dated 18 December 1973), File 5, Box 66, Low/RPI; Senate Space Committee Hearings, (1974), pp. 26–28; "Racism, Sexism, and Space Ventures" [editorial], *The Washington Post*, 24 November 1973; Low, personal note no. 111, 6 January 1974, Box 67, Low/RPI. For the lack of NASA minority or female hiring plans, see Dudley McConnell to Low, 26 November 1973, Low/NHO.

47. Low, personal note no. 112, 20 January 1974, p. 3, Box 67, Low/RPI. For Proxmire and Harris in the 1960s, see "Harris (1971–1)," p. 5ff.

head at NASA observing that forwarding civil rights in employment by “saying it was the law” was not a good idea, “. . . because NASA always breaks the law.”⁴⁸

Senator Proxmire then gave the hapless McConnell a political mauling, starting with the “always breaks the law” statement McConnell first claimed he couldn’t remember and later publicly apologized for making. No contractor compliance programs existed at key NASA Centers in Houston and Huntsville and no “show cause” orders had ever been issued to any NASA contractor. NASA representatives themselves used phrases like “somewhat poor performance” to describe their efforts. Senator Proxmire refused to accept NASA’s contention that it had not excluded minorities and (especially) women from the six groups of all-male and all-white astronauts it had already selected. The color line in professional baseball had fallen in 1947, and the civil rights era was now 15 years old, but NASA was willfully ignoring social change all around it. Dispensing with any pretense at political courtesy, Senator Proxmire said “Congressional monitoring” of NASA’s minority and women hiring programs would take place, effective immediately, via his subcommittee because of NASA’s “extremely poor record.”⁴⁹

Back at NASA, Low was oblivious to NASA’s and McConnell’s mauling. He used phrases like “not really unfavorable” and “in reasonably good shape” to describe NASA’s standing. Selective awareness and denials, however, did not lead either Low or Fletcher to want to personally attend the next hearing, this one by the Senate’s space committee. Aides now protested: both leaders absenting themselves looked bad. One or both needed to attend to maintain NASA’s fast-fading organizational credibility in the Harris case.⁵⁰

James Fletcher flatly refused. A Utah Mormon, Fletcher feared political and religious embarrassment, and with good reason. Mormonism had major problems with race and gender in the 1970s, and Fletcher wanted to keep himself and NASA removed from them. “Fletcher,” Low recorded on 20 January 1974, “. . . is particularly concerned because of his Mormon Church affiliation and the fact that the new ‘prophet’ of the Mormon Church has made statements that can be interpreted as against women and has also re-emphasized that the Mormon Church will not admit blacks to ‘priesthood’ [and full membership in the faith].” Low and others argued that Fletcher was not in the Mormon hierarchy and would probably not

48. Austin Scott, “NASA Hit on Minority Hiring: Agency Needs Prodding, Proxmire Says,” *The Washington Post*, 12 January 1974 (clipping in Low/NHO); Senate Appropriations Subcommittee Hearings (1974), esp. pp. 118–121.

49. *The Washington Post*, “NASA Hit on Minority Hiring”; Senate Appropriations Subcommittee Hearings, (1974), pp. 132–134, 138 (McConnell had approached one aerospace company’s central office to get problems solved informally); “NASA Defends Lag on Women’s Jobs,” *The New York Times*, 12 January 1974 (clipping in Low/NHO). See also Senate Appropriations Subcommittee Hearings (1974), p. 137 and, for audience laughter at NASA expense, pp. 138–140.

50. Low, personal note no. 112, 20 January 1974, p. 2, Box 67, Low/RPI; [Washington, DC] *Afro-American*, 11 January 1974: 107 (clipping in “Harris [1991]”).

have any difficulty separating his personal beliefs from those of his faith. Fletcher, however, demurred. Mormonism's racial exclusion practices, meanwhile, were not ended until 1978 (after Mormon leaders received their first divine revelation since polygamy was ended almost a century before).⁵¹

Low, however, attended the second Senate hearing of January 1974 in Fletcher's place. As he became higher-profile politically, Low also further distanced himself from the physicist he'd so recently and strongly supported over Harris. McConnell, Low observed, was "overwhelmed and overworked," so Low pushed him to hire Dr. Harriett Jenkins, an educator, as a deputy. McConnell bridled, saying Jenkins was not a "professional in EEO [affirmative action]." Given that he wasn't either, Low began wondering whether McConnell wasn't "a little bit afraid" of Jenkins as a woman.⁵²

To test this hypothesis, Low had an aide talk at length with two senior African American women at the nearby NASA Goddard Center who had professional interactions with McConnell. Neither woman was impressed. "Apparently," Low concluded, "[McConnell still had to] learn how to communicate effectively with people, especially women." One of the women and a Hispanic section head at Goddard told Low's aide that minorities and women really *did* believe NASA discriminated regarding promotions. One method the Kennedy Space Center then used particularly annoyed the Civil Service Commission: it had 43 different job rankings for secretaries, so women could thus be promoted but kept out of management ranks.⁵³

Austrian immigrant and political refugee George Low had remade himself in America. He believed "key people" at NASA's Headquarters and its Centers would do the same. Low's optimism, however, was not widely shared on Capitol Hill, where NASA's political grilling about administrative unwillingness, unmet promises, and belated claims about future virtues continued. By 24 January 1974, NASA and George Low faced frank disbelief at hearings before a normally sympathetic Senate Aeronautical and Space Sciences Committee. Ruth Bates Harris's performance at the hearings was calm and understated. Watergate was now consuming more and more Senatorial energies. Harris said NASA had failed in its duty to enforce laws passed by Congress. She and her supporters had "pricked the conscience" of NASA. "Institutionalized racism and sexism" existed there. The virtues NASA now claimed

51. Roger D. Launius, "A Western Mormon in Washington, DC: James C. Fletcher, NASA, and the Final Frontier," *Pacific Historical Review*, 64 (May 1995): pp. 217–241, esp. 228; Low, personal note no. 112, 20 January 1974, p. 3, Box 67, Low/RPI. The exclusion came from a narrow reading of Mormon scripture, including the Book of Alma in *The Book of Mormon*. Industrious Nephites and slovenly Lamanites fought for control of a New World and the latter lost. Their skins became dark and they became savage by Godly decree. Mormon traditionalists put up a 20-year fight against allowing African Americans full spiritual standing.

52. Low, personal note no. 112, 20 January 1974, p. 4, and Low, personal note no. 113, 3 February 1974, Box 67, Low/RPI.

53. Low, personal note no. 112, 20 January 1974, pp. 4–5, 112; Low, personal note no. 87, "Discussions with the Service Commission," 17 February 1973, p. 4, Low/RPI.

were belated and deceptive. NASA's basic problem was that it was letting some of its Centers evade the law. It had not yet begun internal training and promotion programs for female or minority staff. It claimed it could not do what some unspecified percentage of aerospace contractors had already done: increase percentages of minority and women employees even as overall workforces declined.⁵⁴

Harris's performance earned compliments from the committee's chair; Low and McConnell—who avoided being in the same room with Harris—got rougher treatment. Senators doubted that NASA Centers had any intention of doing what NASA Headquarters said it wanted. It didn't help that the Department of Labor said it looked as if every NASA Center Director had their own “personal view of appropriate compliance policies and procedures.” Democratic Senators said NASA was “groping for sympathy” and setting “modest” goals it wasn't really committed to. It didn't help that these goals [of hiring 80 more women and 80 more minorities in professional positions in its 25,000-person workforce in 1974] were decided upon only two weeks before the Senator Proxmire hearing that was held earlier in January. “Where's your sense of urgency?” Senator Howard Metzenbaum of Ohio asked at one point. “He thought our performance was lousy and made no bones about it,” Low later recorded. The committee then, per Senator Proxmire, put NASA under legislative oversight. Affirmative action funding (also per Proxmire) was to double; NASA had to report on every major professional position it filled; and minorities and women were to be put on NASA hiring and promotion boards.⁵⁵

NASA FIGHTS ON

Still NASA leaders fought on. Harris, NASA representatives told Senators, was “little more than a lobbyist for the cause of minorities and women.” Low privately believed Harris and “quite a few” of her supporters within NASA were sabotaging McConnell. The idea that she might be a lightning rod, not a thunderbolt, wasn't considered. NASA's top leaders now knew their case against Harris was legally lost. Nevertheless, in January they decided that she would never be rehired to her former position but, instead, only to a “comparable” post within NASA. If—and when—Harris won, she could be isolated and marginalized.⁵⁶

54. Senate Committee on Aeronautical and Space Sciences, “Testimony of Ruth Bates Harris, January 24, 1974,” Harris/NHO; Low, personal note no. 112, 20 January 1974, pp. 3–6.

55. Austin Scott, “Senators Eye NASA EEO Goals,” *The Washington Post*, 25 January 1974 (Reprinted in *NASA Current News*, 25 January 1974: I); Low, personal note no. 113, 3 February 1974, p. 3, Box 67, Low/RPI.

56. R. Tenney Johnson to “A” [Fletcher and George Low], 3 January 1974, Low/NHO; Low to McConnell, “Decision Statement on Numerical Goals for 1974,” 7 January 1974; and Low, personal note no. 113, 3 February 1974, p. 3, Box 67, Low/RPI. The “lobbyist” change is in Senate Appropriations Hearings (1974), p. 143.

Dudley McConnell's days, meanwhile, were numbered. He still didn't want Harriett Jenkins as a deputy, so Low got Fletcher to hire Jenkins himself. McConnell still resisted, offering at least one other female candidate the job after a weekend interview. Low then forced the issue to a final conclusion. Harriett Jenkins's arrival at NASA wasn't quite as messy as Ruth Bates Harris's had been, but it demonstrated precisely the same organizational ambivalence and infighting.⁵⁷

As Harriett Jenkins began working as McConnell's deputy in February of 1974, the drumbeat of external and internal criticisms intensified. The chairman of the Civil Service Commission, for example, told NASA its record of processing racial and sexual discrimination complaints "was not very good." The Department of Labor was similarly distinctly unimpressed with NASA's record on oversight of civil rights in employment standards in firms it contracted with at its Centers. Recruitment teams for minority and female scientists and engineers still weren't in place in at least four NASA Centers. Low's orders to have entry-level jobs offered to likely candidates "on the spot" weren't happening. A disappointed Low told a meeting of deputy Center directors called to jump-start affirmative action that "most of our technical managers were not accustomed to handling human problems."⁵⁸

Meanwhile, protest levels within NASA increased. The first training workshops regarding racial and sexual issues for senior Center leaders were scheduled for April and quickly got postponed. By March, top-level meetings were called to pick an affirmative action officer "more acceptable to women and minorities." A selection panel should probably consist of three of NASA's highest-ranking women, a Hispanic, and the NASA general counsel. They should "probably" pick a minority person as the affirmative action officer. Low was advising McConnell to return to technical work; trouble was brewing at NASA Centers in Virginia and Texas; and Low was addressing all 1,000 NASA Headquarters staff at "communications" (morale-building) sessions. By May, NASA lawyers still advised settling with Harris; an outside consultant told Low and Fletcher they hadn't done well regarding a "generally unstable headquarters situation since Ruth Bates Harris was terminated," and Low wrote that "[O]ur people are still very much concerned . . . and have not seen that real progress has been made." A Government Accountability Office (GAO) investigation based on interviews with NASA employees confirmed Low's

57. Low to Fletcher, "Miscellaneous Items," 21 January 1974; Low to Deputy Associate Administrator for Organization and Management, 5 February 1974; Low to Fletcher, "Harriet Jenkins," 5 February 1974, all in Box 67, Low/RPI.

58. Low to McConnell, "Complaint Processing Time," 4 February 1974, Box 34, Low/RPI; Low to McConnell, 28 January 1974; Low to Assistant Admin. for Institutional Management, "Proposed Recruiting Plan for Minority Scientists and Engineers," 2 February 1974; "Meeting Record, February 6-7, 1974, JSC, Deputy Directors' Council Meeting," all in Box 67, Low/RPI; "Ex-Aide Rehired by NASA," *The Washington Post*, 18 August 1974: p. A20.

statement. No fewer than six Senate and House committees—including NASA’s authorization and appropriations committees in both houses—got copies of the GAO findings.⁵⁹

So, after eight months, denials gradually began to end. In June of 1974, as Nixon’s presidency entered its final weeks, NASA and NAACP Legal Defense Fund lawyers sat down to hash out a settlement. Two sets of issues especially mattered. The first was organizational. Ruth Bates Harris and her counsel wanted—and got—enhanced training and promotion programs, monitoring of minority and female hiring at middle and senior management levels, and the beginnings of NASA research and development awards to Historically Black colleges and universities. Fletcher and Low refused, however, to give way on a key point. Harris wanted strong Headquarters managerial oversight and control over affirmative action at NASA Centers. This was the centralized job, of course, she had been originally hired by NASA to do. But Fletcher and Low refused, citing NASA’s “decentralized management concept.” Uncooperative Southern Centers got a breathing space.⁶⁰

On a second set of issues regarding Harris’s personal administrative future at NASA, the Agency fought even harder. Harris still wanted what she’d always wanted: Dudley McConnell’s job. That meant policy-making power. NASA still didn’t want her to have this. She had embarrassed an agency that often saw itself in elite, even transcendent terms. To Low and Fletcher, she was an “advocate,” not a “manager.” Her skills were ignored. A senior management discrimination case at Headquarters, for example, had become explosive because of what Low called “three levels of poor management” where the white supervisors involved refused to take training in dealing with minority or female workers until Low “urged them to do it six times.” Harris, who had handled just such intensive “sensitivity training” programs for Washington, DC, police in the 1960s, was still *persona non grata*.⁶¹

Meanwhile, a protesting Dudley McConnell was pushed out of his job in June and July. Low was now *de facto* affirmative action head. The NAACP Legal Defense Fund threatened class action lawsuits on behalf of groups of employees at NASA Centers. NASA’s strongest House ally apparently told NASA the Agency’s political status was slipping. NASA could not win but it could not settle, either.⁶²

59. Harvey W. Herring, “Meeting Record, March 29, 1974, EEO Officer, Low/NHO; “GAO Investigation of EEO Program,” 23 April 1974, Box 107; Low, personal note no. 117, 30 March 1974, p. 4; Low, personal note no. 118, 13 April 1974, p. 2; Low, personal note no. 120, 11 May 1974, pp. 7–8; Low, personal note no. 122, 8 June 1974, p. 11; “Notes for All Hands Meetings [April, 1974],” all in Box 67, Low/RPI.

60. R. Tenney Johnson, “Concerns and Views,” circa 5 June 1974, Box 67, Low/RPI.

61. George Low, “Meeting with Headquarters Equal Employment Opportunity Advisory Group,” 26 June 1974, esp. p. 3.

62. Low, personal note no. 125, 20 July 1974, pp. 5–6, File 1, Box 67, Low/RPI; Low to Fletcher, “House Staff Study on NASA Public Affairs Activities,” 17 July 1974, Box 67, Low/RPI; Constance Holden, “New EEO Leadership at NASA,” *Science* (30 August 1974): p. 769.

Richard Nixon's presidential resignation on 9 August 1974 seems to have helped prompt the combatants to settle. McConnell left office after 16 unhappy months; Harriett Jenkins promptly succeeded him. Ruth Bates Harris came back to NASA, but only at deputy assistant rank and only on the PR and community outreach fringes of the affirmative action office. It was what *Science* magazine termed "at least partial vindication." On the 17th of August, Fletcher's official statement welcoming back the woman he had fired complimented her "genuine ability to communicate to members of communities whom NASA has not reached in the past and whom we need to reach." "[S]ome of the forward movement NASA . . . has made . . .," he continued, "has been stimulated by forces she so eloquently set in motion." An uncompromising and disloyal ideologue now had redeeming importance.⁶³

Verbal bouquets, however, did not make reacclimation any easier. Harriett Jenkins did not work with Harris (some of whose efforts involved identifying and recruiting African American astronaut candidates via aviation veterans' organizations such as the Tuskegee Airmen). NASA's rate of accomplishment remained "abysmally low," George Low noted privately. Line managers had "not launched a significant effort" and top management had not made it clear to line and staff administrators what sanctions or rewards would apply to them. "What's wrong?" a discouraged Low wrote on the margin of his first annual performance review with Harriett Jenkins. Pent-up tensions also levied a wider toll. Harris's marriage dissolved and a son was stricken with AIDS. In 1976, Harris suffered a nervous breakdown and returned to New York to get her life back together. Fletcher and Harris smiled for cameras as she departed, but, after her return to Washington in 1978, she never worked for NASA again.⁶⁴

NASA STARTS TO CHANGE

The Harris deal ended further Senatorial hearings and negative journalistic coverage. All of NASA's internal records on the Harris case were sealed as part of her rehiring agreement. After being legally and politically forced into more active compliance, NASA started congratulating itself on how well it was doing in hiring

63. Dudley McConnell was promoted to Deputy Director for Advanced Programs in the Solar System Exploration Division. He later became Associate Director for Applications in NASA's Earth Science and Applications Division. On 28 October 1991, he died of a heart attack at age 55. R. Tenney to James C. Fletcher, 4 April 1974; Low, personal note no. 126, 18 August 1974, p. 1, Box 67, Low/RPI; James C. Fletcher, "Memorandum to All NASA Employees" 16 August 1974—all in EEO—Very Sensitive file in Low/NHO; Gloria Borger, "Woman Fired by NASA Wins Fight to Return," *Washington Star-News*, 17 August 1974: p. A4; "Harris, Mrs. Ruth Bates" biographical file, NHO; Holden, "New EEO Leadership at NASA," p. 769; Lawrence Feinberg, "Ex-Aide Rehired by NASA," *The Washington Post*, 18 August 1974: p. A20; "Ruth Harris Assumes New Post at NASA," 17 August 1974.

64. "Work Planning and Progress Review, Jenkins-Low, June 27, 1975," Box 76, Low/RPI; "Ruth Bates Harris Honored at Headquarters Farewell Party," *Spaceport News* (25 November 1976): p. 4; "Ruth Bates Harris Appointment at Interior," *Weekly Bulletin* 20 (15 May 1978)—all in "Harris, Mrs. Ruth Bates" biographical file, NHO. Harris, *Harlem Princess*, p. 279ff.

and promoting more women and minorities. The basic norms, beliefs, and practices within NASA’s “human spaceflight culture,” however, only changed slowly. Female and minority supervisors at levels of GS-14 and above stayed rare until the 1980s. A false start at recruiting minority and female astronauts was implemented in 1978. The first female astronauts who “walked through the doors their activist sisters had pried open for them,” however, were hardly feminists. Skepticism and distancing only gradually turned into general acceptance by male astronauts. NASA had taken the right path after repeatedly denying it needed to do so; it thus got little credit for belated understanding.⁶⁵

Meanwhile, the new head of Headquarters Civil Rights in Employment, Dr. Harriett Jenkins, had to operate in an organizational landscape littered with fears and grudges. Two vignettes show how her organizational style remained nonconfrontational and gradualist. First, in February of 1975, an affirmative action meeting for top Center heads was finally held, almost a year late. During that meeting a white manager was “quite rude” to Jenkins. The abuse was thorough enough that a normally undemonstrative Jenkins broke into tears and later asked Low for managerial support. Low gave it, but then his initially concerned comments turned flippant. After talking with the all-white deputy Center directors at the meeting, he privately dismissed female and minority objections to Jenkins’s treatment as overreaction. Given NASA’s “abysmally slow” record since 1971, Low’s turnaround was precisely the kind of group denial that had cost Ruth Bates Harris and Dr. Dudley McConnell their jobs. Jenkins was going to have to proceed carefully to survive for long.⁶⁶

In case she had any doubts, another indicator of just how far NASA had to go occurred late in 1975. Jenkins and her associate, Peter Chen, proposed an affirmative action training session “for NASA’s senior [Headquarters] management from Fletcher and Low on down.” They wanted a one-day session led by two specialists from Arthur D. Little, a well-known management consultancy. Fletcher and Low had a preliminary meeting with the A. D. Little people and came back utterly opposed. Specifically, they did not want any kind of policy discussions or consciousness-raising where disagreements among senior staff might be identified.

65. Kevles, *Almost Heaven*, esp. p. 69ff; Weitekamp, *Right Stuff, Wrong Sex*; and Ackmann, *The Mercury 13*, also briefly cover the opening of the Astronaut Corps to women. Only Kevles very briefly mentions Harris as a change agent (see pp. 58–59). For opposition to female astronauts, see Mike Mullane, *Riding Rockets: The Outrageous Tales of a Shuttle Astronaut* (New York: Charles Scribner’s Sons, 2006), esp. pp. 36ff, 346–347, 357.

66. R. Tenney Johnson to Cashdan, 2 August 1974; Low to Frank Zarb of Office of Management and Budget, 18 September 1974; Low, “Telephone Call From Hugh Loweth,” 1 October 1974; Low to AC “Center Operations,” 20 February 1975; Low, personal note no. 137, 1 February 1975, pp. 3, 8; Low, personal note no. 139, 1 March 1975, p. 3 (all in Box 66, Low/RPI). For “organizational culture” at NASA, see Admiral Harold W. Gehman, Jr., et al., Columbia Accident Investigation Board Report, vol. 1 (August, 2003) (Washington, DC: NASA and the Government Printing Office, 2003), pp. 9, 99–118; McCurdy, *Inside NASA*; Diane T. Vaughan, *The Challenger Launch Decision* (Chicago: University of Chicago Press, 1996); Sylvia Fries, *NASA Engineers in the Age of Apollo* (Washington, DC: NASA, 1977); Charles Murray and Catherine Bly Cox, *Apollo: The Race to the Moon* (New York: Simon & Schuster, 1989).

Because the A. D. Little people “tried to drive a wedge between Fletcher and me, and put Fletcher on the carpet for not knowing as much as I did about the situation in NASA, [they were] not the right kind of people for a NASA training session,” Low concluded—especially because they might also drive wedges between Low and Fletcher and their senior staff, which would only be “counterproductive.”⁶⁷

Because precisely such differential understandings and actual or contrived ignorance were what the affirmative action mess at NASA was all about, Fletcher’s and Low’s refusals ensured more policy muddle within Headquarters and Center managerial hierarchies. They also implied that the men leading NASA had nothing significant to learn or agree about. Those, for instance, who only saw racial or sexual bias when white males were excluded from competitions could continue to do so. When Low told Jenkins and Chen this, Jenkins did not protest, but her associate did. Low’s unusually graphic notes then describe the scene:

I said that they must realize the implementation of EEO [affirmative action] activities at NASA is my responsibility in accordance with policies which were established by Fletcher. Peter [Chen] took issue with this and said that if Fletcher were [*sic*] not going to run EEO in NASA and be personally involved in its implementation, it would never succeed. I very deliberately got mad at Peter, told him if he didn’t like the way I was running things, he could march right into Fletcher’s office and tell him so, but until Fletcher directed me to do differently, I would continue to be in charge. Peter did not take me up on my offer to go see Fletcher, and as a matter of fact backpedaled very nicely.⁶⁸

Given the fate of Ruth Bates Harris, Chen’s (or Jenkins’s) reluctance to appeal over Low’s head to Fletcher was understandable. Low, however, was no cardboard villain. He knew what racism was and had survived Hitlerism. Additionally, his efforts to get NASA to start addressing the problems Harris and her allies identified were relatively strong and sustained as compared with others of his managerial era. On the eve of his departure from the Agency in 1976, for instance, he sponsored an unusual three-day retreat for senior NASA managers. At this meeting, Noel Hinners of the Office of Space Science was unusually frank. “A successful filtering mechanism in the information channel is a major problem,” he began. “Many people believe that real problems are being submerged [or dealt with impatiently].” Problems were also “covered-up so top managers won’t know.” Finally, Hinners added, “[T]here is a failure to face up to personnel problems by many managers who don’t like to discuss such issues with their own people.” Here was most of NASA’s unhappy early experience with minorities and women in a nutshell.⁶⁹

67. Low, personal note no. 156, 13 December 1975, p. 9, Box 65, Low/RPI.

68. *Ibid.*

69. Minutes of Senior Management Conference, Reston, VA, 17–19 March 1976, p. 12, Box 65, Low/RPI; Low, personal note no. 167, 4 June 1976, p. 3, File 1, Box 65, Low/RPI.

THE HARRIETT JENKINS ERA, 1974–1992

Affirmative action's new head at NASA, however, possessed key advantages her predecessors Harris and McConnell had not. The most important was timing. Harris had “lanced the boil,” as Jenkins later put it. Built-up emotional pressures had begun to decrease as decades of denial began to end. Pioneering affirmative action/EEO managers such as Harris had jarred and infuriated people, and their casualty rates were very high. Succeeding managers such as Jenkins avoided Harris and gradually operated in a less strife-filled environment. Generational change was a factor. By the 1980s, the founding generation at NASA, who grew up in a segregated and apartheid America in which women rarely existed in aerospace and never gave adult males orders about anything, were retiring and dying.⁷⁰

Harriett Jenkins also benefited because she was the patient teacher, in personality and bureaucratic approach, that NASA Headquarters may have thought it was getting when it originally hired Harris in mid-1971. Born in Fort Worth, Texas, Jenkins went to Fisk University in Nashville, Tennessee, on a scholarship. Graduating with a mathematics degree in 1945, she joined her sister in California, where she worked in clerical roles for the Air Force, an insurance company, and the Oakland Police Department from 1948 to 1954.⁷¹

Jenkins's real occupational journey began in 1954, the year in which the Supreme Court, in *Brown v. Topeka*, ruled that educational segregation should end “with all deliberate speed.” Jenkins promptly applied for a high school teaching position in the public schools of neighboring Berkeley, California, a notable university town. Notable or not, Berkeley's public schools also excluded African Americans from relatively senior teaching jobs at that time. However, Jenkins did not give up. If one tactic didn't work, she tried another. Taking several years to earn a certificate in elementary education, she applied again and proved herself in the Berkeley system with a second-grade class which had “sent two previous teachers home” in despair. Rising quickly through the ranks as Berkeley slowly and peacefully addressed varieties of de facto school segregation, she became the city's first female African American vice principal, director of elementary education, and finally assistant superintendent of schools. Along the way, she earned her master's in education at the University of California–Berkeley in 1957 and her doctorate in education there in 1973.⁷²

That same year, Jenkins followed her second husband, a career military man, to Washington, where she worked as a consultant before going to NASA. Typically, Jenkins did not confront power; she educated it via alternate routes. While Ruth Bates Harris had charisma, challenging people to energize and motivate them, Harriett

70. Dr. Harriett Jenkins interview with author, 25 August 2005, Bethesda, MD.

71. Carol Harvey, “How to Succeed When It's Trying; Interview with Harriett G. Jenkins . . . of NASA,” *The Bureaucrat: the Journal for Public Managers* 20/3 (Fall, 1991), pp. 33–36.

72. Carol Harvey, “How to Succeed,” pp. 33–34.

Jenkins emphasized thoroughness and patience. Harris spoke of “changing the system” that made discrimination against many groups possible. Jenkins, in contrast, preferred value-neutral phraseology like “increasing the pool” of qualified applicants. The only NASA Headquarters man who officially honored Harris’s efforts at opening space exploration to women and minorities in the 1980s was himself fired for including actress Jane Fonda in a bipartisan group of influential women invited to the launch of first female astronaut Sally Ride in 1982. From then until her death in 2004, Harris was—at best—a footnote in NASA’s organizational memory of itself.⁷³

As Harris (and McConnell) lapsed into invisibility, Jenkins’s 18-year tenure at NASA Headquarters left her with honors from the Agency, from women in aerospace science and engineering organizations, and from the Congressionally chartered National Academy of Public Administration. Moreover, after Jenkins left NASA she became the director of the Office of Fair Employment Practices for the U.S. Senate from 1992 to 1997. She has continued to do consulting work for NASA and other organizations.⁷⁴

Jenkins was honored and Harris was forgotten because Jenkins was a nonconfrontational gradualist. Key, here, was her willingness to work within a decentralized NASA structure and with a Center-oriented Equal Opportunity (affirmative action) Council of deputy directors of NASA labs, joined with staff from Jenkins’s Headquarters office. New York-raised Harris had always opposed this approach, seeing it as one more tool for noncompliance by Southern labs and reactionary middle managers who screened matters from upper echelons. Native Southerner Jenkins seems to have assumed that lower levels of compliance were a shorter-term given, one that would be gradually addressed in programs and plans taking 10 to 15 years to come to fruition. Harris and her allies wanted to force Centers to stop stonewalling and start doing things. Jenkins and managers like her, with a process of sometimes reluctant accommodation under way, wanted NASA Center managers to buy into the concept that diversifying NASA’s labor force was a key part of their jobs, not some radical, liberal excess that would promptly be ruled unconstitutional when legislators and judges came to their senses. Jenkins’s nonconfrontational “What can we do for you?” approach to Center Directors was part of this Fabian strategy. Harris was shocked that a twentieth-century science- and engineering-based Agency had significant numbers of people in it with nineteenth-

73. To illustrate the point about Harris’s historical disappearance, no prominent obituaries appeared when Ruth Bates Harris died in 2004.

74. For a Harris challenge to James Fletcher that contributed to her getting fired, see Senate Appropriations Committee hearings (1974), pp. 56–58; Harris, *Harlem Princess*, pp. 303, 311, 333; Thomas S. McFee (and 13 co-authors, including Jenkins), *Final Report and Recommendations: The 21st Century Federal Manager, Human Resources Management Panel* (Washington, DC: National Academy of Public Administration, September 2002) and Ralph C. Bledsoe (and 13 co-authors, including Jenkins), *A Work Experience Second to None: Impelling the Best to Serve* (Washington, DC: National Academy of Public Administration, September 2001).

century habits of mind. Jenkins already knew, from her experience as a teacher and a school administrator in an elite university town, that very smart people could be very ignorant outside of their areas of expertise. Harris was a primary change agent whose firing and rehiring forced NASA to issue quarterly reports on its hiring of women and minorities to Senator Proxmire and Congress generally for three years. Jenkins made it possible for NASA to slowly move on once Senator Proxmire's reporting requirements were removed in 1978.⁷⁵

CONCLUSION

Thus, the American space program went coed and multiracial. In 1974, women and all minorities combined comprised about 5 percent of the science and engineering workforce of a high-technology agency. As physical sciences and engineering education very slowly opened up to women and nonwhites, these numbers increased, especially for nonminority women and Asian Americans of both sexes. In 1983, Harriett Jenkins wrote Low on NASA's 25th anniversary to tell him about the progress she had made in her first 10 years of integrating women and minorities into NASA's labor force. Jenkins's effort mixed flattery and bureaucratic self-advertisement with a sure hand. She talked about how in a decade nonminority women had risen from 15 percent to just under 18 percent of NASA's total, while minorities had doubled from 6 percent to 12 percent. In the science, engineering, and technical half of NASA, the equivalent percentages were increases from 2.3 percent to 5.5 percent for nonminority women and from 3.9 percent to 8.3 percent for all minorities. Calling this "modest progress," Jenkins went on to tell the man who had done more than anyone else to bring her into NASA that "[T]he greatest challenge still plagues us—the placement of minorities and women in the senior levels of the agency." The 1980s, Jenkins hoped, would accelerate gains because of sympathetic leaders within the Agency in the Reagan era. Complimenting Jenkins's work, Low replied that "the pipeline is filling rapidly" with female candidates qualified for upper managerial ranks, but that the problem of minorities remained "more difficult."⁷⁶

So it was in the nation, in physical sciences and engineering education and occupations generally, and at NASA. The 1980s, as Low expected, saw a gradual increase in nonminority female (and also Asian American) numbers, while progress for other groups remained slower. By 1991, about 12 percent of all NASA science and engineering jobs were held by nonminority women; about 5 percent by Asian

75. Jenkins interview with author, 25 August 2005; "Senate Leaders Appoint a Director of Fair Employment," *Jet* 82 (1 June 1992): p. 22; Nichelle Nichols, *Beyond Uhura: Star Trek and Other Memories* (New York: G. P. Putnam's Sons, 1994), pp. 220–223. Dr. Harriett Jenkins to author, 6 November 2005 (hiring statistics).

76. Harriett Jenkins to George Low, no date (circa November 23), with attached statistical sheets; Low to Jenkins, 14 December 1983 (both in Box 138, Low/RPI).

Americans; and about 4 percent each by African Americans and Hispanics. NASA, like the rest of the U.S. society around it, was gradually opening up to new groups and constituencies. NASA Administrator Dan Goldin flustered many in his agency when he announced in 1994 that the Agency was still too “male, pale, and stale.” But important initiatives such as the Science, Engineering, Mathematics and Aerospace Academy program for precollegiate minority and female students that began in 1993 later went national at NASA because of the efforts of NASA officials like Goldin and Jenkins. It also got NASA to establish more serious university research center relationships with Historically Black colleges and universities in 1995. It took until 1999 for Air Force Colonel Eileen Collins to command a Space Shuttle mission but, 42 years after Sputnik, it happened. Problems remained, though. The largest gender gap for any science and technology issue measured by the National Science Foundation in 2000 was in space exploration (14 percent). The under-representation of women and minorities in the physical sciences and in engineering especially mattered.⁷⁷

The bottom line here is that women and minorities comprise nearly two-thirds of the population and a majority of the American labor force, but only a vastly smaller share of its high-technology and science skills pool. In physics (14 percent) and engineering (8 percent), it is still rare to find a woman holding a Ph.D.-level job. The quarter of the nation’s science and engineering workforce that is female has also changed little in the last decade. The growth of science and engineering graduates among minorities is still very slow. In a decade when an estimated half of all NASA employees and a quarter of all NASA engineers will be eligible for retirement, and in which noted trade journal *Aviation Week & Space Technology* reports that the average age of aerospace workers in American corporations is the early 50s, recruiting and utilizing historically under-represented groups may be only intelligent selfishness in the longer run, for NASA or for any other organization, which is “an investment in America’s future.”⁷⁸

A person who makes this latter argument cogently and well is Dr. Shirley Ann Jackson, president of Rensselaer Polytechnic Institute (RPI) in Troy, New York, and the first African American Ph.D. in physics from MIT. That Shirley Ann Jackson

77. National Science Board, National Science Foundation, *Science and Engineering Indicators—2000, Vol. 1* (Washington, DC: NSF 2000), Chapter 8, p. 21; Dan Goldin, “Bullish on Space Symposium: New York, New York, July 22, 1994,” p. 6; Goldin, “Welcoming Remarks: Briefing for Dr. Petersen, National Science Foundation, August 9, 1994,” p. 1, NHO.

78. “Women, Minorities, and People with Disabilities in Science and Engineering—2002,” National Science Foundation, esp. Chapter 6, available at <http://www.nasf.gov/statistics/nsf03312/c6/c6o.htm>; “SEMAA Annual Report: Creating New Horizons, 10 Years,” (Washington, DC: NASA, 2003); Margaret Wertheim, “Rational Inequality,” *The Los Angeles Times* (30 March 2006); “A Guide to Womanomics,” *Economist* (15 April 2006): pp. 73–74; Dorothy Leonard and Walter Swap, “Preserving Deep Smarts at NASA, ASK: Academy Sharing Knowledge (Winter 2006) (Washington, DC: NASA, 2006), pp. 9–12; Shirley Ann Jackson, “A Critical Shortage: We Face An Imperative to Tap the Talent of the ‘New Majority,’” *Rensselaer* (Spring 2004): p. 2.

assumed her presidency in the same year as Eileen Collins commanded her space mission is no historical accident. The fact that she also succeeded NASA's George Low as a successful and honored president of RPI also has a lot to do with the change era described in this paper. As scholars have recently noted, the early 1970s were a period in which the “woman question” wouldn't go away, inside or outside of NASA. It was also a period during which an all-male and all-white Astronaut Corps came to exclude too many other Americans. NASA's human spaceflight program would have ceased being “manned” and become “human” without Ruth Bates Harris or her supporters, but it would have taken significantly longer than the 20 years it did take. NASA and America's space programs would only have been poorer for it, in terms of public interest, understanding, and regard. Ruth Bates Harris deserves to be remembered as an important actor in the social history of the Space Age.⁷⁹

79. Kevles, *Almost Heaven*, p. 51; Jodi Dean, *Aliens in America* (Ithaca, NY: Cornell University Press, 1998), p. 96.

