"A Very Special Relationship"

SHOT and the Smithsonian's Museum of History and Technology

ROBERT C. POST

> *Synergism: Cooperative action of discrete agencies . . . such that the total effect is greater than the sum of the two or more effects taken independently.*
>
> **—Webster's Third New International Dictionary**

Friday, 23 May 1958, a fair spring day in Cleveland. The *Plain Dealer* headlined the accidental explosion of eight Nike missiles at Middletown, New Jersey, with a death toll of seven or more. Editorially it lamented "Soviet Russia's present leadership in the field of rocketry," and a news item quoted a man identified as "America's chief tracer of unidentified flying objects" on the danger of withholding UFO information from the public: "Russia might claim flying saucers as a propaganda 'secret weapon' at any time." There was a story on the impending demise of the three-cent stamp, and

Dr. Post held various jobs at the National Museum of History and Technology/Museum of American History from 1971 to 1996. From 1974 to 1978 he was special assistant to Brooke Hindle, to whose memory he dedicates this article with gratitude for friendship and support, and, not least, for the title. Post writes: "For help with my research, thanks to Bruce Kirby and LaNina Clayton at the Smithsonian Institution Archives and Rob Harding and John Fleckner at the Archives Center, National Museum of American History, intrepid guardians of the SHOT legacy. Thanks also for guidance, support, or criticism to Ron Becker, Silvio Bedini, Barney Finn, Robert Friedel, Morrell and Barbara Heald, Ben Lawless, Miriam Levin, Art Molella, Bob Multhauf, Alex Roland, Joe Schultz, Bruce Seely, John Staudenmaier, Carlene Stephens, Jeffrey Stine, Eugene Uyeki, Robert Vogel, Jack White, Rosalind Williams, and especially to Dian Post. When I was an undergraduate at the University of California at Los Angeles, the first (and only) teacher to encourage me to think of graduate school was Bradford Perkins, for whom I wrote my senior thesis in 1958. Then it would have meant nothing to me that Perkins's tutor at Harvard had been Mel Kranzberg, but now I find the thought quite engaging."

0040-165X/01/4203-0001$8.00

JULY
2001
VOL. 42

another on the completion of the Wiley-Dondero ship channel, the key link in the Saint Lawrence Seaway.[1]

Something else happened that day. At the Cuyahoga County Courthouse, Melvin Kranzberg, accompanied by two Case Institute of Technology colleagues, John Hrones and Morrell Heald, filed articles of incorporation for a nonprofit organization "to promote the study of the development of technology and its relations with society and culture."[2] News of this event never made the papers. But it is well documented, as is another event a month later in Berkeley, California, when charter members of the new Society for the History of Technology convened a conference in conjunction with a meeting of the Humanistic-Social Division of the American Society for Engineering Education (ASEE), of which Kranzberg was chair. Moderating the opening session, on 16 June, was Lynn White, the president of Mills College in nearby Oakland and a longtime champion of Kranzberg's aim to establish "a society for the cultivation of the history of technology."[3] One of the first two talks was presented by the rising scholar who had attended to local arrangements, Thomas S. Kuhn, assistant professor of the history of science at the University of California, whose topic was "Engineering Concepts in the Development of Thermodynamics." The other was given by Robert P. Multhauf, head curator for the Department of Science and Technology at the Smithsonian Institution, who spoke about "The Role of the Technical Museum in Engineering Education," specifically "the principles behind the new Museum of History and Technology."[4]

Kuhn and White were soon to publish books that transformed the historiography of science and technology, Kuhn's introducing us to paradigms and White's summarizing, he said, "everything I know, and some things I merely suspect."[5] Multhauf would never make his mark in that way, but he

1. My thanks to Molly Berger for photocopying the microfilm of the *Plain Dealer* for that fateful day.

2. John Hrones was Case's vice president in charge of academic affairs ("our administrative setup is more like that of a business corporation than an academic institution," Kranzberg told Henry Guerlac) and Morrell "Bo" Heald was a business historian who became chairman of Case's Department of Humanities and Social Studies in 1959. My thanks to Bo and his wife Barbara for sharing their memories with me when I visited Cleveland in 2000.

3. White to Kranzberg, 14 November 1956, Record Group 400, Records of the Society for the History of Technology, Box 1, Archives Center, National Museum of American History, Washington, D.C. (hereinafter RG 400, NMAH).

4. *SHOT Newsletter*, summer 1958. Kranzberg to White, 14 February 1958, Record Group 266, Melvin Kranzberg Papers, Box 217, Archives Center, National Museum of American History (hereinafter RG 266, NMAH). Kuhn to Kranzberg, 17 March and 14 April 1958; Kranzberg to Kuhn, 31 March and 24 April 1958; Kranzberg to Carl Condit, 25 April 1958, RG 400, NMAH, Box 1. In the second session, Condit and Edward Lurie presented papers and Alfred Chandler was commentator.

5. Lynn White to Condit, 14 April 1958, RG 400, NMAH, Box 1. Kuhn's *Structure of Scientific Revolutions* and White's *Medieval Technology and Social Change* were both published in 1962.

was already making an impression on an emerging discipline. By the time the Museum of History and Technology (MHT) was dedicated by President Lyndon Johnson in 1964, Multhauf would have assembled a unique company of curators, and a decade after SHOT's founding—in 1968, when Multhauf had become director of MHT—Kranzberg would tell one of them that "you people represent the largest collection of historians of technology in this country."[6]

The society's affairs remained integrated with the museum's in the 1970s, in part because of Kranzberg's friendship with Multhauf's successors, Daniel Boorstin and Brooke Hindle. (Together with Eugene Ferguson, these four had been at the heart of the 1965 Conference on Technology in Early American History at the Hagley Museum, a signal event in bringing together specialists and generalists.[7]) And in one obvious way the relationship would become even closer in the 1980s, with the National Museum of American History (NMAH), under Roger Kennedy, underwriting the editorial operations of the society's journal, *Technology and Culture* (not to mention a Smithsonian chief executive, Secretary Robert McCormick Adams, whose scholarly concern was technology and culture).[8] But the relationship was different than it had been in earlier times, when Kranzberg thought it vital that the museum staff be "aflame with enthusiasm" for SHOT because that "collection of historians" was like none other, and when he and Multhauf were unabashed confederates.[9]

At the time of SHOT's founding Kranzberg was forty-one, Multhauf

6. Kranzberg to Robert M. Vogel, 27 March 1968, RG 266, NMAH, Box 148.

7. On the Hagley Conference, see Robert C. Post, "*Technology in Early America*: A View From the 1990s," in *Early American Technology: Making and Doing Things from the Colonial Era to 1850*, ed. Judith A. McGaw (Chapel Hill, N.C., 1994), 16–39. Kranzberg and Hindle first met in the early 1960s, but Kranzberg never tired of telling how Boorstin "was a councillor of mine at a camp in Colorado when I was a young kid"; Kranzberg to Joseph Gray Jackson, 11 February 1969, RG 266, NMAH, Box 65. More recently, these two had discussed a volume for Boorstin's Chicago History of American Civilization series, and in 1973 Kranzberg provided Boorstin with a six-page critique of the typescript for *The Americans: The Democratic Experience* (New York, 1973), for which Boorstin won both a Pulitzer Prize and SHOT's Dexter Prize; Kranzberg to Boorstin, 2 January and 25 October 1973, and Boorstin to Kranzberg, 18 October 1973, RG 266, NMAH, Box 65.

8. *Technology and Culture*'s editorial office was adjacent to the office where Multhauf had edited *Isis* from 1964 to 1978. Adams's ambitious theme was "the growth of technology in the Western world from antiquity to the present day"; Tim Ingold, review of *Paths of Fire: An Anthropologist's Inquiry into Western Technology*, by Robert McC. Adams, *Technology and Culture* 40 (1999): 130. At his invocation in 1984 Adams quoted from a *T&C* article about James Smithson, and, though rarely engaged directly with SHOT, he did deliver the closing address to the society's 1991 annual meeting, held jointly with the History of Science Society, in Madison, Wisconsin. He also exerted a firm influence on personnel matters—in favor of David Noble, for example, who served a brief and turbulent curatorial stint after leaving the Massachusetts Institute of Technology in 1983; Hindle to Kranzberg, 19 November 1984, RG 266, NMAH, Box 119.

9. Kranzberg to James King, 23 October 1958, RG 266, NMAH, Box 135.

JULY
2001
VOL. 42

two years younger. They came from similar backgrounds. Both were Midwesterners who had served in the U.S. armed forces—Kranzberg as an intelligence officer in Europe, Multhauf as a shipboard engineering officer in the Pacific—and received doctorates from premier universities, Berkeley and Harvard. Both had felt "secret yearnings" for high station, as Multhauf put it recently, but in 1952 Kranzberg landed at the Case Institute, and within a couple of years Multhauf landed at the Smithsonian Institution.[10] Even though Case had a well-regarded general education program, and the Smithsonian was renowned for its scientific work, neither had been the sort of place to attract the best and brightest historians.

After the war, Kranzberg had spent a year on the faculty at the Stevens Institute of Technology in New Jersey and five years at Amherst College in Massachusetts, teaching modern European history. In 1952 he got an offer from Oberlin College in Ohio, but elected instead to "retread" (his word) and accept a position nearby, in Cleveland, determined to rise to the new challenge of "an important job which needs doing."[11] Multhauf, like many others to follow in his footsteps, had anticipated halls of ivy, not museums on the Mall. He had studied Far Eastern and Medieval European history, but his graduate schooling was disrupted when his major professor lost his job in a controversy over mandatory loyalty oaths—the first of several times the cold war touched Multhauf's career directly.[12] By the time he had finished his dissertation (titled "The Relationship Between Technology and Natural Philosophy, ca. 1250–1650, as Illustrated by the Technology of the Mineral Acids") no academic job was available to him, so he accepted a fellowship at the Johns Hopkins Institute of the History of Medicine. There he saw an announcement for a position as curator of engineering in the Smithsonian's old Arts and Industries (A&I) Building. Among many applications, his was the only one from a historian, and his training and background in chemical engineering—he had worked for both Hercules Powder

10. The quote is from Multhauf's contribution to "In Memoriam: Melvin Kranzberg (1917–1995)," *Technology and Culture* 37 (1996): 403–28. He recalled incorrectly that he and Kranzberg were both "disadvantaged" (out of work) in 1953.

11. Kranzberg to Crane Brinton, 8 May 1952; Oscar Handlin to Kranzberg, 15 May 1952, RG 266, NMAH, Box 137. Kranzberg to Marie Boas, 21 May 1958, RG 400, NMAH, Box 1. At Harvard Kranzberg had audited A. P. Usher's course in economic history, and another economic historian, Charles Cole, had introduced him to Lewis Mumford's *Technics and Civilization* while he was still an undergraduate at Amherst. It was Cole who, as Amherst's president, recommended Kranzberg for the job at Case; see Robert C. Post, "Missionary: An Interview With Melvin Kranzberg," *Invention and Technology*, winter 1989, 34–39.

12. Classicist Ludwig Edelstein and thirty other professors at Berkeley and UCLA were fired for refusing to sign a Regents' loyalty oath on the grounds that it was a violation of academic freedom. For a measured account by a UCLA historian who was discharged, see John W. Caughey, "A University in Jeopardy," *Harper's Magazine*, November 1950. Those discharged were rehired following a ruling of the Supreme Court, but the episode was still fresh in Caughey's mind when we met in 1959.

and U.S. Rubber—made him doubly attractive to the head of the museum, Frank Taylor, who was himself a mechanical engineer.

Now a "retread" like Kranzberg, Multhauf started to work in April 1954. A year later Congress authorized the new museum, and in 1956 it appropriated funds for construction. In the interim, Multhauf went from being (in his own words) "an unemployed historian" to being "an administrator—and an employer." By 1966 he would be director. But long before that, as head curator for the Department of Science and Technology, he was squarely involved in building the staff essential to creating dozens of new displays, on subjects ranging from telephones to steam engines, and also in providing that staff with opportunities "to distinguish themselves as scholars and thereby distinguish the museum and the Smithsonian."[13] And by lending the cachet of that venerable institution he would be instrumental in giving SHOT (as Kranzberg would later say) "credence and respectability in scholarly circles."[14]

But the existence of an organization like SHOT would also make a major difference to the fledgling MHT, notably in lending authority when powerful critics made accusations of "errors and distortions" and even "perversions of history" in one of the new exhibits, their threats prefiguring those that precipitated a crisis in the 1990s from which the Smithsonian has yet to recover.[15] And certainly the existence of a learned journal dedicated "to the study of technology and its relations with society and culture" would serve Multhauf well in that aim of enabling curators to distinguish themselves and their institution. At a time when technology's storytellers were seldom taken seriously in the academic world because "the standards of scholarship [were] so lax," Multhauf's new MHT and Kranzberg's new SHOT were crucially important in validating one another.[16]

The two were linked at birth. In December 1958, SHOT held its first annual meeting—in Washington, not Cleveland, where the groundwork for the society had been laid. Multhauf cochaired the program committee with Carl Condit, who had also spoken at the Berkeley ASEE conference and whose eminence had been certified since Lewis Mumford lauded *The Rise*

13. Robert P. Multhauf Interviews, 29 May and 23 July 1974, Record Unit 9502, Smithsonian Institution Archives, 4 (hereinafter Multhauf Interviews, SIA); Multhauf, remarks on receiving the Leonardo da Vinci Medal of the Society for the History of Technology, *Technology and Culture* 29 (1988): 646.

14. Kranzberg to Alex Roland and Carroll Pursell, 12 May 1987, RG 266, NMAH, Box 155. Although there were four head curators, Multhauf was distinct in his attitude toward staff publication—"quite adamant," was how one veteran remembered it; see Robert C. Post, "A Life With Trains: An Interview with John H. White, Jr.," *Invention and Technology*, fall 1990, 38.

15. See Robert C. Post and Arthur P. Molella, "The Call of Stories at the Smithsonian Institution: History of Technology and Science in Crisis," *ICON* 3 (1997): 44–82. This article closed on a tentatively optimistic note, which does not seem to have been warranted.

16. Lynn White to Kranzberg, 14 November 1956, RG 400, NMAH, Box 1.

of the Skyscraper in the *New Yorker* in 1952.[17] There was a joint program session at the Mayflower Hotel with the American Historical Association and another with the American Association for the Advancement of Science and the History of Science Society. Participants again included Lynn White (who in the interim had taken a faculty position at the University of California at Los Angeles), as well as John U. Nef, Robert Crane, John Rae, E. N. Hartley, Arthur Hummel, and Eugene Ferguson, a list that readily confirms Brooke Hindle's fond observation about SHOT having begun "with a motley crew of scholars who were but slightly conscious of their common interest in the history of technology."[18] Nef, Crane, Rae, and Hartley had academic affiliations, Hummel was the recently retired chief of the Division of Orientalia at the Library of Congress, and Ferguson was on Multhauf's staff at the Smithsonian, as were several others in attendance.

On 29 December, with Multhauf, White, Condit, and Rae present, along with Roger Burlingame, Richard Shryock, and William F. Ogburn, Kranzberg convened the SHOT Executive Council for the first time, in Multhauf's departmental office in the Smithsonian's A&I Building (fig. 1). Later, Ogburn was elected president at the business meeting, attended by twenty-one men and women in the Natural History Building across the Mall.[19]

The premiere issue of *Technology and Culture* appeared in 1959, featuring contributions by Burlingame, Peter Drucker, Howard Mumford Jones, Multhauf, Condit, and Cyril Stanley Smith, the distinguished director of the Institute for the Study of Metals at the University of Chicago. Chicago was the site of the second annual meeting. There was another joint program with the AHA and the AAAS, arranged by Multhauf, and Condit conducted a memorable walking tour of the Loop. Even though there would be bumps in the road—it was tough getting everyone to feel comfortable with the name of the journal, even tougher to get it out of the red, and the society's first two presidents, Ogburn and David Steinman, both died in office—SHOT was on its way.[20] Through Multhauf, Kranzberg had made certain that it would grow to adolescence in close conjunction with the

17. Melvin Kranzberg, "A Tribute to Carl W. Condit," *Technology and Culture* 30 (1989): 256.

18. Brooke Hindle, foreword to *Technology's Storytellers: Reweaving the Human Fabric*, by John M. Staudenmaier (Cambridge, Mass., 1985), ix.

19. *SHOT Newsletter*, December 1958. Condit to Kranzberg, 18 April 1958; Kranzberg to Condit and Multhauf, 23 December 1958; Case Institute Press Release, 28 December 1958; Minutes of the Meeting of the Executive Council, 29 December 1958, RG 400, NMAH, Box 1. Minutes of the Annual Business Meeting, 29 December 1958, RG 400, NMAH, Box 2.

20. William F. Ogburn to Kranzberg, 23 February 1959; Kranzberg to Ogburn, 9 March 1959, RG 266, NMAH, Box 166. Kranzberg to Lynn White, 30 August 1960, RG 266, NMAH, Box 217. "Prof. William F. Ogburn Dead; Sociologist Wrote on Technology," *New York Times*, 28 April 1959. *Dictionary of American Biography*, suppl. 6 (1980), s.v. "Steinman, David Barnard."

FIG. 1 Sign-in sheet from the first meeting of the SHOT Executive Council, 29 December 1958. The faint signature on the seventh line is Multhauf's. Note that Mel Kranzberg neglected to put down his name.

Smithsonian, which hosted annual meetings three more times in the 1960s, thrice in the 1970s, and again in 1983, the society's silver anniversary—fully one-third of the total up to that time (table 1).

And MHT would provide a goodly portion of the society's cadre of activists. One-third of those elected to the SHOT Executive Council over the next forty years had ties to the Smithsonian, either as staff or through the fellowship program or both (table 2). Multhauf became SHOT's seventh president, Ferguson its eleventh, Hindle its thirteenth. To date, five winners of the Dexter Prize, seven of the Usher, and sixteen Da Vinci medalists have had a Smithsonian connection at one time or another, including the most recent medalist, Silvio Bedini, who hired on as a curator in 1961, became assistant director a few years later, and was especially energetic in recruiting members to the society and manuscripts for *Technology and Culture*.[21]

Kranzberg even established a genial correspondence with the head of the Smithsonian, Leonard Carmichael, not only to boost MHT staffers as

21. On 10 December 1963, Bedini wrote to Kranzberg that he had made "two converts," his colleagues Robert Vogel and Bernard Finn (RG 266, NMAH, Box 63), and there is ample evidence for his efforts on behalf of *T&C*.

JULY
2001
VOL. 42

TABLE 1
SHOT ANNUAL MEETINGS, 1958–2001

Year	*Location*	*Year*	*Location*
1958	Washington, D.C.	1980	Toronto
1959	Chicago	1981	Milwaukee, Wisc.
1960	New York	1982	Philadelphia
1961	Washington, D.C.	1983	Washington, D.C.
1962	Philadelphia	1984	Cambridge, Mass.
1963	Philadelphia	1985	Dearborn, Mich.
1964	Montreal	1986	Pittsburgh, Pa.
1965	San Francisco	1987	Raleigh, N.C.
1966	Washington, D.C.	1988	Wilmington, Del.
1967	Toronto	1989	Sacramento, Calif.
1968	Dallas	1990	Cleveland, Ohio
1969	Washington, D.C.	1991	Madison, Wisc.
1970	Chicago	1992	Uppsala
1971	New York	1993	Arlington, Va.
1972	Washington, D.C.	1994	Lowell, Mass.
1973	San Francisco	1995	Charlottesville, Va.
1974	Chicago	1996	London
1975	Washington, D.C.	1997	Pasadena, Calif.
1976	Philadelphia	1998	Baltimore
1977	Washington, D.C.	1999	Detroit
1978	Pittsburgh, Pa.	2000	Munich
1979	Newark, N.J.	2001	San Jose, Calif.

"pillars of our organization" but also to enlist him directly in SHOT activities. Carmichael warmly affirmed its general objectives, took an active interest in the debate over the name of the journal, reviewed several books, and chaired a session at the 1961 meeting.[22]

Times change. While many Smithsonian people still march among the ranks of SHOT loyalists, the society and the museum no longer play a role in validating one another, nor is there any interest in sharing the society's allegiances on the part of the Smithsonian's newest secretary, Lawrence Small.[23] In one respect, however, a permanent link has been forged, through

22. Kranzberg to Carmichael, 12 January 1959; also 2 April 1958, 25 September 1959, 5 January 1962; Carmichael to Kranzberg, 31 March 1958, 22 September 1959, RG 266, NMAH, Box 73.

23. A secretary like none of his predecessors, Small had previously headed the Federal National Mortgage Association (Fannie Mae, a lending agency that buys mortgages and resells them as securities) and before that had run the institutional and corporate business at Citibank. In 2000, announcing that land developer Kenneth Behring had donated

TABLE 2
SHOT Executive Council, 1958–2001

Abrams, John W.	Dibner, Bern	Jones, Howard M.	Reti, Ladislao
Althin, Torstin	Diebold, John	Kilgour, Frederick G.	Reynolds, Terry
Anderson, Hakon With	Divall, Colin	Kouwenhoven, John	Roland, Alex
Austin, James B.	Donovan, Arthur	Kranakis, Eda†	Rolt, L.T.C.
Basalla, George	Douglas, Susan†	Laird, Pamela	Rothschild, Joan
Beer, John J.	Drucker, Peter	Layton, Edwin T.†	Schott, Johan
Bedini, Silvio*	Dunlavy, Colleen†	Leslie, Stuart W.†	Scranton, Philip
Belt, Elmer	Ezell, Edward*	Lewis, W. David†	Seely, Bruce
Billington, David	Ferguson, Eugene*	Lindqvist, Svante	Shryock, Richard
Brainerd, John G.	Finn, Bernard*	Lintsen, Harry	Sinclair, Bruce†
Braun, Hans Joachim	Fitzgerald, Deborah	Long, Pamela O.†	Smith, Cyril Stanley
Bright, James R.	FitzSimons, Neal	Lubar, Steven*	Smith, Merritt Roe†
Brittain, James E.†	Friedel, Robert†*	Lurie, Edward	Stanitz, John D.
Brooks, Harvey	Fries, Russell	Mack, Pamela†	Stapleton, Darwin
Bryant, Lynwood	Giebelhaus, August	Marshall, W.R., Jr.	Staudenmaier, John
Bud, Robert	Goldstein, Carolyn†*	Mayr, Otto*	Steinman, David B.
Burchard, John E.	Hafter, Daryl	McMahon, Michal	Stephens, Carlene*
Burke, John G.†	Hall, A. Rupert	McGaw, Judith	Susskind, Charles
Burlingame, Roger	Hall, Bert†	Misa, Thomas	Swenson, Loyd S.
Carlson, W. Bernard†	Hanford, W.E.	Multhauf, Robert P.*	Thackray, Arnold
Chandler, Alfred D.	Hartenberg, Richard S.	Mumford, Lewis	Trescott, Martha
Channell, David	Hecht, Gabrielle	Nixon, Frank	Volti, Rudi†
Chase, Edward T.	Hewlitt, Richard	Nye, David	Warner, Deborah*
Condit, Carl W.†	Hindle, Brooke*	Ogburn, William F.	Wengenroth, Ulrich
Constant, Edward	Hitz, Elizabeth	Pargellis, Stanley	White, Lynn, Jr.
Cooper, Carolyn†	Holloman, J. Herbert	Penn, Theodore	Wik, Reynold
Cooper, Gail†	Hounshell, David†	Pettitt, Joseph M.	Wilkie, Leighton A.
Corn, Joe†*	Hughes, Thomas P.†	Post, Robert C.†*	Williams, James C.†
Cowan, Ruth Schwartz	Israel, Paul	Pursell, Carroll W.†	Williams, Rosalind
Cutcliffe, Stephen	Jackson, Joseph Gray	Rae, John B.†	
Dawson, Virginia	Jenkins, Reese	Reich, Lenny†	

*Smithsonian staff
†Smithsonian fellow

the museum's responsibility for the society's archives, a set of documents described by Lynn White as basic to understanding "the sprouting of an essentially new historical discipline on a global scale." As the correspondence amply documents, this new discipline sprouted in the context of "a very special relationship"—again, the phrase is Brooke Hindle's—between two institutions.[24]

---

eighty million dollars to the museum, now to be called "Behring Center," Small foretold a "complete transformation" and made it clear that scholarship would no longer be a significant part of its mission. Linda St. Thomas, "Philanthropist Kenneth Behring Increases SI Gift to $100 million," *The [Smithsonian] Torch*, 10 October 2000; see also "Lawrence M. Small Begins Tenure as Secretary," *Smithsonian Today* 1 (winter/spring 2000): 1, and, on Small's tenure at Citibank, Philip L. Zweig, *Wriston: Walter Wriston, Citibank, and the Rise of American Financial Supremacy* (New York, 1995).

24. Hindle to Roger Kennedy, 10 December 1979, copy in Record Unit 7467, Robert P. Multhauf Papers, 1957–1987, Box 5, Smithsonian Institution Archives (hereinafter RU

* * *

During the seven months between SHOT's incorporation in May 1958 and that initial meeting at the Smithsonian in December, there were two other notable start-ups in Washington. On 29 July, Dwight Eisenhower signed a bill creating the National Aeronautics and Space Administration, whose first civilian administrator would be T. Keith Glennan, the president of Kranzberg's school, champion of his SHOT initiatives, and founder of the NASA history program in which so many SHOT stalwarts would flourish.[25] Then, on 22 August, Senator Clinton Anderson of New Mexico, as chair of a joint congressional committee charged with advising the Smithsonian Regents on the new museum building, broke ground. Kranzberg had been pondering "a new scholarly society" for some while longer than the conventional "creation story" assumes, as Bruce Seely has disclosed in a splendid *T&C* article.[26] But people at the Smithsonian had dreamed of a museum like MHT even before Usher, Mumford, and Sigfried Giedion published their pioneering analyses of "social history from a material perspective."[27]

JULY
2001
VOL. 42

The story of an unfulfilled dream, "The Museum that Might Have Been," has likewise been told in *T&C*, by Art Molella.[28] Suffice it to say here

---

7467, SIA). The Lynn White quote is from a letter to Kranzberg, 2 November 1983, RG 266, NMAH, Box 187. White, John Rae, and Cyril Stanley Smith made up an ad hoc committee of former SHOT presidents charged with determining where Kranzberg's papers should be deposited.

25. Melvin Kranzberg, "Memorial: T. Keith Glennan (1905–1995)," *Technology and Culture* 37 (1996): 659–62. Kranzberg tells of running into Glennan "at a supermarket checkout counter" and asking, "wouldn't it be nice if the agency had a history program?" Over the years, members of NASA's History Advisory Committee included Kranzberg, Multhauf, John Rae, Carroll Pursell, Thomas Hughes, I. B. Holley, Nathan Rosenberg, and Walter Vincenti, and of course it supported work by Alex Roland, Bart Hacker, Ed and Linda Ezell, James Hansen, Roger Bilstein, Sylvia Fries, and many others.

26. Bruce E. Seely, "SHOT, the History of Technology, and Engineering Education," *Technology and Culture* 36 (1995): 739–72. To say that the creation story includes an element of myth is not to deny that what Rachel Laudan calls the subsumption thesis—the construction of technology as "the Other"—lives on. To verify, one only needs to read Pamela Henson's "'Objects of Curious Research': The History of Science and Technology at the Smithsonian," in *Catching Up With the Vision*, suppl. to *Isis* 90 (1999): S249–S269, which claims that "by the end of Multhauf's era, the MHT staff were primarily academically trained historians of science." Actually, that was the case with less than 20 percent of the forty-odd curators, and many of the most productive had never even been to graduate school.

27. Arthur P. Molella, "The First Generation: Usher, Mumford, and Giedion," in *In Context: History and the History of Technology—Essays in Honor of Melvin Kranzberg*, ed. Stephen H. Cutcliffe and Robert C. Post (Bethlehem, Pa., 1989), 88–105, quote on 93.

28. Arthur P. Molella, "The Museum That Might Have Been: The Smithsonian's National Museum of Engineering and Industry," *Technology and Culture* 32 (1991): 237–63. Thanks to Reggie Blaszczyk for calling my attention to documents pertinent to this initiative in the Commerce Department files, Box 432f, Herbert Hoover Presidential Library, West Branch, Iowa.

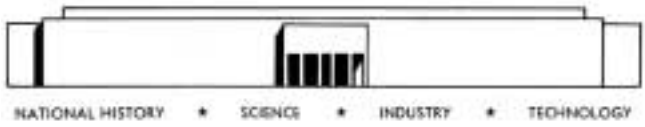

FIG. 2 A stylized vision of the future, as seen in *A New Museum of National History and Technology for the Smithsonian Institution* (Washington, D.C., 1953).

that two Smithsonian officials had been elaborating plans for a museum of engineering and industry since the 1920s. One was Carl Mitman, whom readers may recognize as the author of several hundred entries on inventors and engineers in the *Dictionary of American Biography*. The other was Mitman's protégé, Frank Taylor, who became chief curator of the technological collections when Mitman was assigned responsibility for the newly authorized (but unfunded) National Air Museum in 1946. Although Taylor's notoriety is confined to Smithsonian annals, it was largely due to his "experience, patience, and ingenuity" (Multhauf's words) that a new museum was created for the "arts and industries" collections.[29] For three decades after Taylor started as a lab apprentice in 1922 it had been impossible to gain the requisite political momentum. That situation changed under the new regime of Secretary Carmichael, when the two of them found the way to strike a responsive note on Capitol Hill.[30]

In 1953, Taylor prepared a formal request for "authority to construct on the Mall in Washington a Museum of National History and Technology . . . to place before the millions who visit the Nation's Capital each year a stimulating permanent exposition that commemorates our heritage of freedom and highlights the basic elements of our way of life."[31] (See fig. 2.) In endorsing this proposal, Carmichael remarked that such a museum was needed not only to enable the Smithsonian to carry out its mission of increasing and diffusing knowledge but also to "serve other urgent national interests."[32]

29. Robert P. Multhauf, "The Museum of History and Technology: An Analysis," typescript, RU 7467, SIA, 2. From 1974 to 1982 Taylor provided the Smithsonian Institution Archives with a remarkable series of interviews (RU 9512), whose transcripts run to 439 pages.

30. On MHT's origins, see Marilyn Sara Cohen, "American Civilization in Three Dimensions: The Evolution of the Museum of History and Technology of the Smithsonian Institution" (Ph.D. diss., George Washington University, 1980).

31. *A New Museum of National History and Technology for the Smithsonian Institution* (Washington, D.C., 1953), 5. Cohen expertly assesses this "slick, informative, positive, and patriotic document" (133), a copy of which is deposited with Record Unit 334, Office of the Director, National Museum of American History, 1945–1987, Box 155, Smithsonian Institution Archives (hereinafter RU 334, SIA). The museum was officially authorized under the name Museum of History and Technology; in 1969 it became the National Museum of History and Technology.

32. *A New Museum of National History*, 3.

JULY
2001
VOL. 42

Such urgent interests weighed especially heavily on the mind of an eleven-term Republican congressman from Royal Oak, Michigan, whose name was mentioned in another context at the beginning of this article, George Dondero. With Senator Alexander Wiley of Wisconsin, Dondero cosponsored legislation authorizing the Saint Lawrence Seaway, which passed in May 1954. A month later, as chairman of a key subcommittee of the House Committee on Public Works, Dondero introduced a bill to authorize construction of "a museum building for the Smithsonian Institution."[33]

For long-suffering curators, obliged to tend collections on meager budgets in overcrowded quarters, this promised an escape from the Arts and Industries Building (whence had come the Smithsonian's designation as "the nation's attic"). For Dondero the problem was not simply a cramped building with "neither artistic merit nor historical significance."[34] He could appreciate that a more becoming setting should be afforded such national treasures as the *John Bull* locomotive and Joseph Henry's first electromagnet, both dating from 1831, or prototype telephone instruments of Alexander Graham Bell and Elisha Gray from the 1870s. But he apprehended something else as well: that the United States merited an exalted technological museum more than any other nation in the world, and that the absence of such a museum gave aid and comfort to our mortal enemies in the Kremlin, particularly (as Carmichael put it) given "the Soviet claims of priority with respect to the world's important inventions."[35]

This was reasonable, for nowhere was official history propounded more blatantly than in Soviet Russia. But when it came to museums, Dondero, a military history buff, revealed more than a tinge of Strangelovian lunacy. In a speech on the House floor in the spring of 1952, for example, he had assailed "cubism, expressionism, surrealism, dadaism, futurism and other movements in art" as "the weapon of the Russian Revolution," which, "having infiltrated and saturated many of our art centers, threatens to overawe, override and overpower the fine art of our tradition and inheritance." All the "isms," Dondero said, "are of foreign origin and truly should have no place in American art—all are instruments and weapons of destruction."[36]

33. *A Bill to Provide for the Preparation of Plans and Specifications for a Museum Building for the Smithsonian Institution*, 83rd Cong., 2nd sess., H.R. 9500.

34. *A New Museum of National History*, 11. It is worth noting that a building depicted as "a low-cost product of the low ebb of Victorian architectural taste" in the 1950s could be reassessed in the 1970s as "masterful." James M. Goode, "The Arts and Industries Building," in *1876: A Centennial Exhibition*, ed. Robert C. Post (Washington, D.C., 1976), 209.

35. House Committee on Public Works, Subcommittee on Buildings and Grounds, *Hearings on H.R. 416 and H.R. 2114*, 84th Cong., 1st sess., 1955.

36. George A. Dondero, "Communist Conspiracy in Art Threatens American Museums," *Congressional Record*, 82nd Cong., 2 sess., 17 March 1952, 2423–27. Dondero's papers in the Burton Historical Collection, Detroit Public Library, are a trove of cold war

Two years later, Dondero's proposal for the new Museum of History and Technology made news in Washington but was overshadowed elsewhere by other events—the Supreme Court's order to desegregate public schools with "all deliberate speed" and a number of developments that were closely related to one another: Senator Joseph McCarthy's charges that both the army and the CIA were infiltrated by Communists, the Army-McCarthy hearings, the denial of J. Robert Oppenheimer's request for reinstatement as a consultant to the Atomic Energy Commission, President Eisenhower's report that the United States had tested a hydrogen bomb, the establishment of the United States Air Force Academy, the fall of Dien Bien Phu. These were all linked in the overarching context of the cold war, of course, and the cold war was surely linked with emergent enthusiasm for a museum to celebrate American ingenuity, so long beyond reach despite repeated efforts by men of strong ideals and earnest purpose.

Dondero's 1954 bill got snagged in a dispute over the siting of the building, but he immediately introduced a new authorization in the next congress, and now there was some heavy artillery to back it up. Speaking to the fiftieth anniversary meeting of the American Association of Museums in June 1955, Vice President Richard Nixon expressed his approval of the measure and that of Eisenhower as well. Ratification followed swiftly. The president signed the authorization on 26 June and a planning measure on 4 August. As Alex Roland reminds us, authorization and appropriation are quite different matters; in the case of the National Air Museum, the one was separated from the other by more than a quarter century.[37] Not so with MHT. Less than a year later, Eisenhower signed Public Law 573, which provided $33.7 million for constructing a museum on Constitution Avenue between Twelfth Street and Fourteenth, a stone's throw from the Washington Monument.

The architectural commission went to the venerable firm of McKim, Mead and White, and the place its people designed was immense: five stories plus basement and cooling tower, with a gross floor area 4.6 times larger than A&I and greater than that of either the Natural History Building or the National Gallery of Art, its two neighbors on the north side of the Mall. There were three floors for exhibitions, the first of them 577 feet long and 300 feet wide, the next two 491 by 216. The ground floor, with its entrance on Constitution Avenue, was to be almost entirely devoted to

---

diatribe ("Communism has infiltrated our Government, schools, labor organizations, churches, business, politics, veterans organizations and nearly every phase of American life," he told a gathering in Roanoke, Virginia, on 26 June 1947), but disappointingly shy on information about the inception of MHT. Frances Stonor Saunders makes some discerning remarks about Dondero's politics in *The Cultural Cold War* (New York, 1999), 253–54.

37. Alex Roland, "Celebration or Education? The Goals of the U.S. National Air and Space Museum," *History and Technology* 10 (1993): 77–89.

JULY
2001
VOL. 42

technological displays, and, with his resourceful band of curators, Multhauf was responsible for devising nearly all of them.[38]

Multhauf once remarked that "people here are like people everywhere else and some of them get ten times as much done as others."[39] He himself was a good example. In 1954, Taylor had first assigned him an on-the-job learning experience, to reconceptualize the so-called power hall in A&I as a prototype for MHT's, a task he carried through in concert with a gifted and charismatic designer, Ben Lawless.[40] But long before this task was completed Multhauf had been handed difficult administrative responsibilities as well, getting rid of overly commercial exhibits and underproductive curators, and especially recruiting for newly authorized slots. At first his thoughts turned to people like himself, with graduate-school credentials, and indeed both John Rae and Robert Schofield would express an interest in MHT before opting for the academy (Rae at the Massachusetts Institute of Technology and Case before moving to Harvey Mudd College in Claremont, California, Schofield as Kranzberg's longtime Case colleague). Perhaps they were put off by all that being a federal civil servant entailed—years after starting to work, Multhauf was obliged to take a routine "historian examination"—but in any event Multhauf could identify no scholars with a serious interest in museum work. So he looked elsewhere, among the ranks of "amateurs and hobbyists."[41]

38. Frank Taylor, "Brief History of the Museum of History and Technology," typescript, 8 February 1963; Taylor to Leonard Carmichael, 12 November 1957; James Bradley to R. L. Plavnick, National Capital Planning Commission, n.d.; Silvio A. Bedini, "A Look Behind the Scenes at the National Museum of History and Technology," draft typescript, 22 May 1977; "MHT Building Dimensions," RU 334, SIA, Box 114. Once boasting "the largest practice in the world" (Leland M. Roth, *McKim, Mead and White, Architects* [New York, 1983], xix), the firm was often termed "rusty" by the 1950s, and MHT's design was seriously flawed.

39. Multhauf Interviews, SIA, 28.

40. The idea of prototyping exhibits in A&I never worked out, and eventually they were stockpiled at the "Exhibit Laboratory" on 24th Street NW; Frank Taylor to Multhauf, 27 April 1959, Record Unit 375, Department of the History of Science and Technology, National Museum of American History, c1925–1937, 1954–1985, Box 5, Smithsonian Institution Archives (hereinafter RU 375, SIA). Lawless and Multhauf, artist and scholar, developed great regard for one another, though Lawless recalled an inauspicious meeting: On his first day, Multhauf "wandered into the design office . . . and right up to my desk, where he managed to spill an entire bottle of India ink on my nearly finished drawing. 'That shouldn't be too hard to clean up,' he said without a blink"; Lawless to Post, 28 September 2000, author's files. On Lawless, a powerful influence on the tenor of MHT exhibits, see Peggy Thompson, *Museum People: Collectors and Keepers at the Smithsonian* (Englewood Cliffs, N.J., 1977), 265–71. On the rise of the professional exhibit designer, see Gary Kulik, "Designing the Past: History-Museum Exhibitions from Peale to the Present," *History Museums in the United States: A Critical Assessment*, ed. Warren Leon and Roy Rosenzweig (Urbana, Ill., 1989), 3–37.

41. Leonard Carmichael to John B. Rae, 6 June 1956; Frank Taylor to Multhauf, 12 December 1956; Taylor to Remington Kellogg, 24 January 1957; "Candidates Considered for MHT," 24 January 1957, RU 334, SIA. Multhauf Interviews, SIA, 75.

Not that he came to regret this necessity, not in the least; rather, he would always express great pride in this first generation. His favorite was Howard Chapelle, an authority on sailing ship design, whom Multhauf called "the most eminent person on our staff" even though he had no training as a historian and even after there were plenty of curators with solid academic credentials.[42] Of the same sort was Edwin Battison, "a Vermont machinist and self-taught historian" (Multhauf's words again) who quickly built an exemplary collection of machine tools while helping topple conventional wisdom about the inception of interchangeable parts and providing "patient tutorage" for none less than Merritt Roe Smith.[43] There was Robert Vogel, schooled at the University of Michigan as an architect but smitten by the nineteenth century, who would create pathbreaking exhibits in civil and mechanical engineering and later develop a significant engineering archive while spearheading the Society for Industrial Archeology.[44] There was Jack White, with a bachelor's degree in European history, skill at a drafting board, and a fancy for "anything that was mechanical," who would become the consummate museum professional and gain countless honors, including SHOT's Dexter Prize.[45] There was Gene Ferguson, an engineer with no advanced degrees, but a powerful thinker and always an inspiring presence to his colleagues.

And when Ferguson left for an academic post in Iowa, there was Silvio

42. Multhauf Interviews, SIA, 80. Chapelle's dozen books included *The Baltimore Clipper* (1930), *The History of American Sailing Ships* (1935), and *The Search for Speed Under Sail* (1968). Daniel Boorstin had a similar regard for Chapelle, enthusiastically backing his promotion to a "supergrade," the first for a MHT curator (Boorstin to Chapelle, 17 March 1970, RU 334, SIA, Box 109). Thanks to Jack White for taping his personal recollections of Chapelle.

43. Multhauf, remarks on receiving the Leonardo da Vinci Medal (n. 13 above), 651; Edwin A. Battison, "Eli Whitney and the Milling Machine," *Smithsonian Journal of History* 1 (summer 1966): 9–34, and "A New Look at the 'Whitney' Milling Machine," *Technology and Culture* 14 (1973): 592–98. The lead in overturning Whitney mythology had been taken by Robert Woodbury, who also worked for Multhauf at the Smithsonian in the 1950s, though he spent most of a forty-year career at MIT. Woodbury's "The Legend of Eli Whitney and Interchangeable Parts," *Technology and Culture* 1 (1960): 235–53, was the premiere recipient of the Usher Prize in 1961 (Usher presented it personally), and his *History of the Lathe to 1850* debuted the SHOT Monograph Series. For Smith's appreciation of Battison, see *Harpers Ferry Armory and the New Technology* (Ithaca, N.Y., 1977), 7, 242.

44. "The Life and Times of Robert M. Vogel, Ret.," *SIA Newsletter*, fall 1988, 4–8; Vogel, "Assembling a New Hall of Civil Engineering," *Technology and Culture* 6 (1965): 59–73; Eugene S. Ferguson, "Hall of Power Machinery, Museum of History and Technology," *Technology and Culture* 9 (1968): 75–85. One of the few times Kranzberg wrote to Frank Taylor was to congratulate him for having a man of "Mr. Vogel's stature on your staff"; 15 January 1963, RU 266, NMAH, Box 204.

45. John Hoxland White Jr., "Why Write History?" *Railroad History* 152 (spring 1985): 6–12; Post, "A Life With Trains" (n. 14 above). David Hounshell's generous Dexter Prize citation for *The American Railroad Freight Car* (Baltimore, 1993) appears in *Technology and Culture* 36 (1995): 655–56.

JULY
2001
VOL. 42

Bedini, who was especially enthusiastic about antique timekeeping devices and scientific instruments but also had "an uncanny ability to spot unlikely and obscure relationships" (Ferguson's words) and boundless energy and charm.[46] Bedini would soon rise to second-in-command, deftly take charge whenever the director's attention got diverted, arrange with his old friend Bern Dibner for the establishment of the Dibner Library for the History of Science and Technology, and remain a prolific and provocative author into the twenty-first century.

Bedini came to the museum in 1961, at the recommendation of his Connecticut neighbor Derek Price, as the last of a remarkable cohort who framed its new interpretations of "history and technology."[47] Most spent their entire careers at the Smithsonian; in moving on after less than four years Ferguson was an anomaly, as was James King, a historian of electrical science and technology who went to the American Institute of Physics in 1961 after completing his doctorate at Cornell University. By then a significant shift had begun at the museum. More and more new hires were people who, like Multhauf, had once been on academic trajectories: Walter Cannon, Barney Finn, Deborah Warner, Uta Merzbach, Sami Hamarneh, Audrey Davis, Jon Eklund, Monte Calvert, Otto Mayr. Doctorates were the norm among this group, yet only a few—Finn, Calvert, Warner, Mayr—became closely engaged with SHOT or played a decisive role in defining the museum's representation of history and technology. Not until the 1980s would a new generation of curators get a chance to do that.

As Multhauf looked back on all the people he was involved in recruiting, he had mixed feelings about the second generation but no doubt that the "amateurs and hobbyists" were a remarkable lot. Not least, they were crucial to sustaining many of SHOT's early initiatives and providing scarce copy for *T&C*. Bedini's article on "The Compartmented Cylindrical Clepsydra" was the second winner of the Usher Prize, which for a time was almost a monopoly of people with ties to the museum. In Bart Hacker's index to the journal's first quarter century, Bedini has the eighth longest

46. Ferguson to Brooke Hindle, 27 October 1977, RU 334, SIA, Box 6. I am obliged to Bedini for countless favors over the years, not least for providing me with a copy of his very first article, "The Clock of Death," *Bulletin, The National Association of Watch and Clock Collectors*, October 1953.

47. It should be noted that there were three departments besides Multhauf's—Civil History, Armed Forces History, and Arts and Manufactures—and that his curators had a handful of counterparts in those departments, notably Arts and Manufactures: Philip Bishop (the chair of the department), Edward Kendall, Eugene Ostroff, and Grace Rogers and Rita Adrosko, specialists in iron and steel, agriculture and forest products, photography, and textiles, respectively. Curators beyond Multhauf's orbit were rarely engaged with SHOT, though Rogers (who came up with the name of the museum) did write a *T&C* essay on the way textiles and textile machinery were treated in the Oxford *History of Technology*, and Adrosko penned a perceptive review of Sidney Edelstein and Hector Borghetty's translation of *The Plictho of Gioanventura Rosetti*, a treatise still noted on the inside front cover of every issue of the journal.

entry, and the top dozen also includes Ferguson, Jack White, and Multhauf, as well as Hindle, who became MHT's director in 1974 after having been involved with the Smithsonian as a consultant since the 1950s.[48]

Hindle succeeded Daniel Boorstin, who had succeeded Multhauf in 1969. Both Hindle and Boorstin had fled the academic world in dismay, uncomfortable among a professional peerage that seemed focused on historical conflict and failure, or, as Boorstin put it, "the limits of our achievement."[49] Yet in the museum world they represented a new and even revolutionary generation, one that sought to integrate technological exhibits into mainstream history. That goal appeared a little closer when the name of the museum was changed from History and Technology to American History in 1980, thereby dispelling any perception of "technology and history as separable."[50] Boorstin and Hindle thoroughly admired their predecessors for what they had been able to create, but a later curatorial cohort was sometimes skeptical of what it saw as a tendency "to define importance in a narrowly technical way." Even though MHT's displays featured many newly acquired objects, say the authors of a new history of the museum's exhibitry, real progress was negligible because "ultimately visitors were encouraged to draw a single and simple conclusion."[51]

48. I have based my comparisons on the simple expedient of measuring column inches in Hacker's annotated index. In the dissertation upon which *Technology's Storytellers* is based, John Staudenmaier used a weighted points system that assigned Carl Condit the most points and the next highest totals to Cyril Stanley Smith, Ferguson, Carroll Pursell, Thomas Hughes, Multhauf, and Bedini but excluded such prolific contributors as Jack White and Hindle because the portal was publication of a full-scale article.

49. "Remarks of Daniel J. Boorstin upon assuming the Directorship of the National Museum of History and Technology, September 30, 1969," author's files.

50. "Statement by Roger G. Kennedy, Director, National Museum of American History (formerly History and Technology)," author's files.

51. Steven O. Lubar and Katherine M. Kendrick, "American Legacies: Imagining the Nation at the National Museum of American History" (typescript slated for publication by the Smithsonian Institution Press in 2001 as *Legacies: Collecting America's History at the Smithsonian*), 25, 28. This is not to deny that it is more useful to think of a clock or typewriter in cultural terms than as a "small machine," as curators of the 1950s and 1960s typically did (I had not considered the matter in just that way until reading Carlene Stephens's fine essay, "From Little Machines to Big Themes: Thinking about Clocks, Watches and Time at the National Museum of American History," *Material History Review* 52 [2000]: 44–58), but only to question visions of progressive enlightenment. Compelling concerns about exhibits driven primarily by "themes" are raised by Harold Skramstad, who apprenticed with Robert Vogel and Ben Lawless at MHT before moving on to the Chicago Historical Society and then the Henry Ford Museum and Greenfield Village. See, for example, his reviews of *Exhibiting Dilemmas: Issues of Representation at the Smithsonian*, ed. Amy Henderson and Adrienne L. Kaeppler, *Technology and Culture* 41 (2000): 353–55, and *History Museums in the United States: A Critical Assessment*, ed. Warren Leon and Roy Rosenzweig, *Technology and Culture* 32 (1991): 651–53, in which he inveighs against the assumption that the role of the history museum is to spotlight "an individual scholar's directly revealed truths" (652).

Now, one might argue that single and simple conclusions were—and are—usually about all that one may hope to impart in a museum exhibit; the challenge of distilling effective messages out of "a wilderness of fact and ideology" was one that Multhauf fully appreciated.[52] Or one might argue that "single and simple" was sometimes not the case at all. No less so than any bright newcomer to the staff in the 1980s, Frank Taylor believed that it was "the curator's function to find meaningful relationships in the history of technology, art, and cultural history," and there were exhibits conceived by those "amateurs and hobbyists" that did just that.[53] These people were anything but naive, and Kranzberg understood this as well as anybody when he enlisted MHT in the cause of imparting to SHOT "credence and respectability." Indeed, it was precisely because one of the new exhibits did *not* draw a single and simple conclusion that Multhauf first drew daunting fire from an aggrieved "stakeholder" and, turning to Kranzberg, called on SHOT for reinforcements.

* * *

It took longer to complete the building than anticipated, and when Lyndon Johnson spoke at the formal opening on 22 January 1964 (fig. 3) citizens were still in shock from the Kennedy assassination two months before. Johnson reiterated the patriotic credo that had animated the museum's authorization: "I hope every schoolchild who visits this capital, every foreign visitor who comes to this First City and every doubter who hesitates before the onrush of tomorrow will, some day, spend some time in this great Museum."[54]

The nation was headed for such dark tomorrows. That same month, the Joint Chiefs of Staff urged Johnson "to undertake bolder actions which may embody greater risks" in Vietnam, and in August Congress passed the Tonkin Gulf Resolution, a measure whose implications would becloud everything in the United States for years to come. One way or another, those implications touched anyone whose concern was the relationship of technology and culture. In 1964, Stanley Kubrick's *Dr. Strangelove*, Herbert Marcuse's *One Dimensional Man*, the opening salvo of the free speech movement at Berkeley, and Marshall McLuhan's *Understanding Media* all

52. Multhauf, "The Museum of History and Technology: An Analysis" (n. 29 above), 6. Even though Multhauf revered Howard Chapelle's scholarship, he also believed that his exhibit philosophy—get lots of models and "stick 'em out there, as many as you could get"—was utterly wasteful of educational opportunity.

53. Frank Taylor, "Curatorial Functions in the Science and Technology Sections of the Smithsonian's Museum of History and Technology" (address presented to the annual meeting of the Association of American Museums, St. Louis, 29 May 1964), RU 334, SIA, Box 59, 2.

54. "Address by the President of the United States," in *Dedication of the Museum of History and Technology of the Smithsonian Institution, January 22, 1964* (Washington, D.C., 1964), 20.

FIG. 3 President Lyndon Johnson speaks at the dedication of the Museum of History and Technology, 22 January 1964. Secretary Leonard Carmichael is at left. (*Smithsonian Journal of History*, spring 1966, 72. Courtesy of the Smithsonian Institution.)

heralded "darkside" apprehensions (in Hindle's ominous word) that would soon spread through the academy. Newly arrived at the University of Delaware, Ferguson noted efforts to implement "some kind of program that will disarm or derail apologists for technology." But at Case, Kranzberg was brought to tears by the "blanket condemnations" of technology that accompanied escalation of the war, and Hindle recoiled at his ordeals on the campus of New York University.[55] Finding his position becoming untenable at the University of Chicago, Boorstin began to review his options elsewhere.[56]

55. Ferguson to Kranzberg, 5 October 1969; Kranzberg to Ferguson, 17 October 1969, RU 266, NMAH, Box 99. Hindle, "Historians of Technology and the Context of History," in Cutcliffe and Post (n. 27 above), 235.

56. The assumption seems warranted that Boorstin had "never been able to escape fully the legacy of his HUAC testimony"; Jon Weiner, "The Odyssey of Daniel Boorstin," *The Nation*, 26 September 1987, 307. In 1953, when called by the House Un-American Activities Committee as a former Communist, he testified against his college roommates and his Harvard advisor. See Eric Bentley, ed., *Thirty Years of Treason: Excerpts from Hearings before the House Committee on Un-American Activities, 1938–1968* (New York, 1971), 575–612.

Just after MHT opened, Carmichael had conveyed the secretarial scepter to S. Dillon Ripley, a Yale naturalist who, as Molella aptly puts it, "aspired to nothing less than the re-invention of the Smithsonian as a great university" and who would turn out to be the Smithsonian's "most active and ambitious chief executive since the first occupant of the position, Joseph Henry."[57] Ripley instituted sabbaticals. He made funds available to curators for travel in conjunction with their historical inquiries and permitted them to set aside weekly "research days." He backed a high-caliber periodical, the *Smithsonian Journal of History*, edited at first by Walter Cannon and later by SHOT stalwart Peter Welsh.[58] He established a council of notables that would bring scholars like Condit, Tom Hughes, Hunter Dupree, and Ruth Schwartz Cowan regularly into Smithsonian precincts. Most importantly, through a new office of academic programs headed by Philip Ritterbush, he inaugurated resident research fellowships, including four annual predoctoral fellowships and two postdoctoral fellowships for the pursuit of "studies of the history of science and technology and their conjunctions with government, society, and ideas." Among the first postdocs were Condit and Hughes, while early predocs included Roe Smith and Harold Skramstad, and the fellowship program evolved into an organic link between the museum and academic communities. In addition, Ritterbush instituted formal ties with nearby universities, including a cooperative program in the history of science and technology with the University of Mary-

57. Arthur P. Molella, "The Research Agenda," in *Clio in Museum Garb: The National Museum of American History, the Science Museum and the History of Technology* (*Science Museum Papers in the History of Technology* 4 [1966]), 40, 39. I appreciate Art's address to the MHT/SHOT synergism in a session we organized along with Robert Bud for the 1996 SHOT meeting in London. Ripley died on 12 March 2001. Amid liberal and deserved praise by his memorialists was a provocative remark by the *Washington Post*'s Ken Ringle ("S. Dillon Ripley: The Muse in the Museum," 13 March 2001): "He joined the Office of Strategic Services in 1942 and . . . in later years the aroma of secret-gathering would follow him to the Smithsonian, among whose appropriations and personnel the Central Intelligence Agency was rumored to hide some of its Cold War activities."

58. Though it would prove to be short-lived, the journal got off to a strong start with a very distinguished advisory board, including Samuel Eliot Morison, Julian Boyd, and Louis B. Wright, as well as Lynn White and Hunter Dupree, both of whom were approached in 1965 about applying for the directorship of the museum; Frank Taylor to P. K. Lundeberg, 24 January 1966, RU 334, SIA, Box 144. In extending a welcome to Cannon, Kranzberg suggested that "authors are not always aware of just which journal their articles are best suited for" and proposed sharing information about submissions. Cannon responded generously, noting that his cover design had been inspired "by the cuts you have recently had on your cover." Kranzberg to Cannon, 21 June and 6 July 1965; Cannon to Kranzberg, 30 June 1965, RU 266, NMAH, Box 195. On Cannon's vision for the journal, see "History at the Smithsonian," *Smithsonian Journal of History* 1 (spring 1966): 65–71. During its three years of publication, Bedini, Battison, and Jack White were regular contributors, with important articles also appearing by Dupree, Carroll Pursell, and George Rogers Taylor, some of which would have readily suited *T&C*.

land. Ferguson, Condit, Cyril Stanley Smith, Lynwood Bryant, and Kranzberg, among many others, participated in joint seminars. Negotiations between Ritterbush and Kranzberg for a shared curriculum in history and museum work failed to materialize, but that was a rare setback. Ripley had effectively set the Smithsonian on a new course, and by 1968 Multhauf could write that "in . . . the history of technology, where no educational tradition exists, we have come increasingly to be recognized as the leading institution not only for research in the field but for training."[59]

There was an irony, however, for what had simultaneously lost momentum was MHT's raison d'être, which had brought many new staffers there in the late 1950s with "a sense of mission": the exhibit program.[60] Although the influential critic Ada Louise Huxtable had characterized the new building in the most unflattering light, she wrote glowingly of the displays it contained.[61] Indeed, these almost always got good notices, and the number of visitors, 5.4 million, was the most ever recorded for a museum in its first year. About a fifth of the exhibit space was occupied when the building opened, including the displays of vehicles, first ladies' gowns, and the Star Spangled Banner—all of which had been A&I mainstays. Within a year or two these were joined by exhibits on timekeeping devices, hand tools and machine tools, farm equipment, civil and mechanical engineering, ship design, underwater exploration, mathematics, medicine, dentistry, pharmacy, communications, and graphic arts, plus part of the armed forces or "history of defense" displays.[62]

Of those slated to follow, however, some were drastically truncated (iron and steel, for example) or delayed for years (most of electricity, nuclear energy, photography) or never opened at all (forest products, coal mining, the post–Civil War military). Private funding for exhibits often resulted in conspicuous commercialism; a mural in the petroleum hall depicted roughnecks wearing the faces of oil industry executives. Public funding was provided for new installations in the wake of a fire on the third floor, but the synoptic *Growth of the United States* exhibit, conceived by the deft Tony Garvan, went begging when only partly completed.

There was more to the problem than merely the austerities imposed by

59. Multhauf, "The Museum of History and Technology: An Analysis" (n. 29 above), 6; S. Dillon Ripley to Heads of Organization Units, "Higher Education and the Smithsonian Institution," 22 July 1964, RU 334, SIA, Box 26.

60. Philip Bishop, a dissenter from the precept that curators were obliged to publish in order to establish their authority, used this phrase in an angry memo to Bedini, 23 May 1968, about the subordination of exhibits to a misguided conception of the Smithsonian "as an institution of 'higher learning'."

61. Ada Louise Huxtable, "The Museum of History and Technology of Smithsonian Opens Doors Today," *New York Times*, 23 January 1964.

62. Smithsonian Institution, news release, 23 January 1964, RU 375, SIA, Box 5. Silvio A. Bedini, "The National Museum of History and Technology: Chronology of Major Events, 1964–1976," typescript, 8 June 1978, author's files.

JULY
2001
VOL. 42

national trauma, though those played a role. Carmichael had always been an enthusiast for the new museum and warmly supportive of Multhauf personally; when he was invited to become editor of *Isis* in 1963, Carmichael had blessed the union, calling it "a great compliment to Dr. Multhauf and through him to the Smithsonian."[63] It was different with Ripley. Even though Multhauf advanced to the directorship in 1966, he found so little room to maneuver that he elected to spend nearly a third of his tenure on leave. There was an especially chilly relationship with Ripley's new assistant secretary for history and art, Charles Blitzer, who would loom large in MHT affairs. Unlike critics such as Huxtable, neither Ripley nor any of his lieutenants were especially taken with the new exhibits. Blitzer failed to resonate with "beautiful, gleaming machines," and Ritterbush believed the only proper role of museums was to "exploit the wide social relevance of knowledge."[64]

In MHT's first exhibits, there was little of the concern for "social relevance" and none of the critical edge occasionally evidenced in exhibits of the 1980s and early 1990s, and yet there was also a remarkable absence of Whiggish intimations that technologies of the past were merely a prelude to the present. Displays included many replicas of antique devices created at Multhauf's behest—a fifteenth-century magnetic compass; a seventeenth-century mariner's astrolabe, reflecting telescope, and vacuum pump; a nineteenth-century planetarium; a dividing engine, a Blanchard lathe, a Whitney milling machine—and nowhere were such devices presented with progressivist airs.[65]

Any sense that attention to strife and tragedy was absent is readily dispelled by a glance at some of the original labeling, as in the armed forces hall, where one could read of Indian treaties being "ruthlessly violated" and the "all-out campaign of extermination" in the Seminole Wars.[66] Nor was there any absence of public contention over exhibits. Always, there were let-

63. Carmichael to Frank Taylor, 9 October 1963, RU 334, SIA, Box 4.

64. Blitzer quoted in Bryce Nelson, "The Smithsonian: More Museums in Slums, More Slums in Museums?" *Science*, no. 154 (December 1966): 1153; Philip Ritterbush, *The Art of Organic Forms* (Washington, D.C., 1968), iv. Ritterbush warned of the danger that "knowledge will accumulate in museums like fossilizing sediments on the sea floor, a stygian process of concern to only a few misshapen bottom-dwellers sifting through it for their private amusement," and, as might be expected, had few fans at MHT. Multhauf discusses "ideological disagreements" with Ripley in "The Triumph of the Flag, or a Requiem for the MHT," a paper he has kindly shared with me.

65. These were the work of L. C. Eichner, whose skills Multhauf celebrated in an elegant booklet: *Laurits Christian Eichner, Craftsman, 1894–1967* (Washington, D.C., 1971).

66. Thanks to Joanne Gernstein London for calling my attention to these scripts in Record Unit 623, Director, National Museum of American History, Exhibit Records, 1948–1965, Box 3, Smithsonian Institution Archives. Joanne researched these records exhaustively for "A Modest Show of Arms: Exhibiting the Armed Forces at the Smithsonian Institution, 1945–1976" (Ph.D. diss., George Washington University, 2000).

ters to editors from people annoyed by what they saw in the museum: "stick to the display of old dresses," one demanded.[67] But things could get serious, as when Peter Welsh—who took over *Growth of the United States* when Garvan quit—suggested installing a "slum dwelling" in order "to convey something of the total culture" of the nineteenth century. Ripley warmed to the idea and Blitzer took it for his own, saying "it's the nasty side of life we're in danger of losing today."[68]

Blitzer was referring to "nastiness" in displays, not the world at large, but his remark provided a feast for the pundits, by turns contemptuous, ironic, and farcical. If the Smithsonian truly had "a responsibility to show everything," as Blitzer claimed, "can he afford to overlook the brothel, the abattoir, or the privy? How about a hanging, or better, a lynching?"[69] Aghast at what an aide called "the Smithsonian's worst press to date," Ripley dissociated himself from any celebration of "the total culture," but not before the tale had been well embroidered and syndicated nationwide.[70]

This episode of course had echoes in the *Enola Gay* saga of more recent times, a proposed exhibit thwarted by strident dissent. There were other disputes over completed displays, as happened in the 1990s with *Science in American Life*. Right after the first part of the armed forces hall opened in 1965, for example, it fell under criticism by an assistant professor at the University of Baltimore, Gerry Rolph, for sundry "historical mistakes." Ripley sought affirmation of its accuracy from a distinguished group of military historians.[71] No sooner had that issue been resolved than different

67. M. A. Berkovitz, letter to the editor, *Washington Post*, 7 July 1965. Many people are familiar with the early controversy involving the Wright *Flyer*, but just as telling was a dispute involving the Smithsonian's pre–World War I telegraph exhibit and its "alleged effort to remove Alfred Vail from the artifactual record." Russell Douglass Jones recounts this story in "Engineering History: The Foundation of Industrial Museums in the United States" (Ph.D. diss., Case Western Reserve University, 2001).

68. Peter Welsh to Multhauf, 10 January 1967, RU 276, SIA, Box 29; Blitzer quoted in Nelson, 1153.

69. Rodney D. Briggs, letter to the editor, *Washington Post*, 15 January 1967. A flood of letters to the Washington papers, as well as op-ed pieces such as William Hines's "The Preservation of 'Losersville'" (*Washington Star*, 12 January 1967), exactly prefigured the corrosive rhetoric of the 1990s. "Is there anything the taxpayer can do to get such people as Charles Blitzer . . . off the Federal Payroll?" asked a 19 January letter to the *Star*.

70. George J. Berklacy to S. Dillon Ripley, 11 January 1967, Record Unit 276, Director, National Museum of History and Technology, 1944–1975, Box 39, Smithsonian Institution Archives (hereinafter RU 276, SIA). Blitzer weathered the storm and later went on to the presidency of the National Humanities Center and the directorship of the Woodrow Wilson International Center for Scholars, which he had helped found while serving as Ripley's lieutenant; for details, see "Charles Blitzer Dies at Age 71," *Washington Post*, 21 February 1999. As an aside, *T&C* would not have come to MHT had it not been for Blitzer's timely intercession.

71. In December 1965, when Ripley received a letter from Rolph that enumerated three dozen alleged errors in the section on the Civil War alone, he quickly convened a review panel chaired by the chief curator of the National Park Service. "This hall will

JULY
2001
VOL. 42

questions of accuracy came to be raised, this time in baldly threatening terms and by parties of real consequence. And this new episode would try Multhauf sorely, for he now sat in the front office.

In getting so many exhibits mounted all at once, Multhauf had sometimes relied on work by consultants—Derek Price for one, but also several others, including Robert Chipman, a charter member of SHOT and chair of the department of electrical engineering at the University of Toledo. It was Chipman who scripted the museum's exhibit on the telephone, in consultation with James King, the former curator. King had published a monograph on the telephone that paid considerable attention to Elisha Gray as well as to Alexander Graham Bell. So did the MHT exhibit. Not long after this exhibit opened, a Mrs. Joseph Jones inspected it and "reported a number of objections" to her husband, Dr. Joseph Marion Jones. No obscure assistant professors here. Lilian and Joseph Jones were the sister and brother-in-law of Melville Bell Grosvenor, president of the National Geographic Society, Bell's direct descendant, and the foremost trustee of his heritage in the American pantheon.[72]

Although he had not developed the telephone exhibit, the installation had become the responsibility of Barney Finn, the second history of science Ph.D. hired by Multhauf (Cannon was the first), who arrived at MHT after a teaching stint at the University of Oklahoma. In 1965 Finn finished the draft of an article for the new *Smithsonian Journal of History* that was partly based on Bell's notebooks in the Bell Room at the National Geographic. He sent it to Grosvenor for comment. Grosvenor passed it on to the Joneses, whom he regarded as authorities on Bell's career, particularly his contests over patents. They in turn reported that "only the informed and exceptionally diligent reader [could] avoid questioning the importance of Mr. Bell in

---

surely leave even the most sophisticated visitor with strong impressions of its accuracy, meticulous craftsmanship, and careful chronological arrangement," wrote Theodore Ropp of Duke University, who added that "it ranks with other such great museums as the National Maritime Museum at Greenwich, the Peabody Institute, and the Australian War Memorial"; "Comments on the Hall of the Armed Forces of the United States," typescript, 20 January 1966, RU 276, SIA, Box 39. Another member of the committee, Forrest Pogue—who later headed the Eisenhower Institute at MHT—recounted its work in "Pass in Review," *Museum News* 45 (April 1967): 6, 56.

72. Warren Danzenbaker to Silvio A. Bedini, memorandum, "History of the Bell Telephone Exhibit," 26 September 1973, RU 276, SIA, Box 45. King left the museum before publication of his three-part article on "The Development of Electrical Technology in the 19th Century" (*Contributions from the Museum of History and Technology*, no. 28 [1962]: 231–406), in which he called Gray "one of the first inventors of a practical communications system using alternating currents of different frequencies" (315). But in a later contribution to the same series, "The Earliest Electromagnetic Instruments" (no. 38, 1964), Chipman thanked King "for many provocative discussions on this and related topics" (136). Multhauf refers wryly to the National Geographic Society as "the telephone company's Washington arm"; Multhauf to Post, 24 March 2000, author's files.

the invention of the telephone." And this led them to revisit the exhibit, which they pronounced likewise "depreciatory of Mr. Bell's role in the invention of the telephone."[73]

Specifically, they objected to a caption that seemed to allow unwarranted recognition to a German, Philipp Reis, for "transmitting voice" in the 1860s, and to a block of text titled "Alexander Graham Bell and Elisha Gray." "Whether it be a presidential race, or a horse race, or an invention race," Joseph Jones declared, "history seldom gives equal billing to the winner and the runner-up, and I submit it is not fair to do so with Bell and Gray." "From beginning to end," he concluded, "the Smithsonian exhibit reflects the host of unwarranted claims made against Bell, claims disallowed repeatedly by the Courts, and thus distorts history."[74]

In a seven-page critique, Jones expressed his concerns directly to Grosvenor, who conveyed a copy to Finn, who flatly disagreed. Indeed, there *was* sound evidence that Reis had transmitted a human voice; indeed, Gray's work *was* significant, particularly in illustrating "how two men will follow virtually the same technical road independent of each other." When Jones phoned Finn to discuss the matter, all he heard was further credence given to "stray wisps of claims, disallowed by the courts." Whereupon he, in his own expression, "opened up": "I warned Finn that . . . he should be fully aware of what he was getting into: That after all that had happened, the descendants of Mr. Bell were not going to stand by idly and see Alexander Graham Bell's effort to protect his reputation go down the drain, that they were prepared to go to any lengths to prevent it—to his [Finn's] superiors, to Congress, to the courts, and if necessary to the press."[75]

By the time people at the Smithsonian heard a similar outburst from the Air Force Association in 1994, everyone was quite mindful of the perils of bad press. Even in 1966 this was not a threat to be taken lightly, but for a while it passed, with the Joneses under the impression that a new telephone exhibit was in the works. Imagine Lilian Jones's shock, then, when she visited MHT a year later and found little significant change. She composed a letter to Multhauf that assumed an even more intimidating tone than her husband's. Oh, yes, "some of the most objectionable panels" concerning the Reis transmitter were gone. But "the basic grossest errors" concerning Gray's part in the story were still there, just as before. After her husband called Finn and got no assurance that anything would be fixed—or

73. Joseph Marion Jones to Melville Bell Grosvenor, 27 January 1966; this and the following citations are all from RU 266, NMAH, Box 195.

74. Ibid.

75. Jones to Grosvenor, 23 June 1966. The Finn quotation is from a letter to Jones, 20 June 1966. Finn added that the comparison of Gray and Bell was "intriguing because of the differences between the two men—the one with a background in electricity, the other with a background in phonetics." This provided the theme for David Hounshell's "Elisha Gray and the Telephone: On the Disadvantages of Being an Expert," *Technology and Culture* 16 (1975): 133–61.

JULY
2001
VOL. 42

even that a new exhibit would "not be similarly biased"—it was Lilian Jones who "opened up":

> It is deplorable that a great national museum should grossly distort the history of a major American invention and that specific errors should misinform the public so long after they are pointed out. This question naturally arises in our minds, and in the minds of many who have seen the telephone exhibit and with whom we have discussed the problems: If in the Smithsonian such perversions of history can occur with respect to the telephone, how often does it occur in other exhibits? One wonders whether the time has not come for a full-scale review, by outside advisory committees and consultants, of the historical accuracy of Smithsonian exhibits.[76]

In the 1990s, such threats would send the Smithsonian into a tailspin. Though typically unflappable, Multhauf could see a dire necessity for damage control, especially after a letter arguing for the virtue of exhibits that paid due attention to "the contributions of persons other than the 'immortals'" just got the Joneses even more incensed. He immediately wrote them again, this time to promise that he was arranging to have the matter arbitrated by independent experts.[77]

And then Multhauf called in a chit with Mel Kranzberg, who was soon riding to the rescue as chairman of a committee of SHOT notables—Bern Dibner, Thomas Hughes, and Cyril Stanley Smith—with an announcement that "the Society for the History of Technology is pleased to have the opportunity to be of service to our national museum and to interested citizens, in our effort to further knowledge and understanding of the history of technology." Kranzberg first suggested to Multhauf that the committee might regard complaints from the Bell family "as an historical problem" in itself, and Multhauf knew just what he meant. But he responded with an admonition to stick to "the question at hand," namely whether the invention of the telephone was a simple and straightforward matter or whether it "contains one or more neat little historical problems."[78]

The Joneses were still agitated about the opinions of "professional academic iconoclasts" being mirrored in "a national museum of the United States." But they welcomed the prospect of an investigation by such a "distinguished and highly qualified" quartet: Kranzberg, the editor-in-chief of *Technology and Culture* and also secretary of the Society for the History of Technology; Dibner, a notable electrical inventor in his own right and also director of the Burndy Library; Hughes, a leading scholar in the history of

76. Lilian Grosvenor Jones to Robert P. Multhauf, 1 May 1967.

77. Multhauf to Joseph and Lilian Jones, 8 and 9 May 1967; Joseph Jones to Multhauf, 12 May 1967.

78. Kranzberg to Multhauf, 25 July 1967; Multhauf to Kranzberg, 5 September 1967.

electrical engineering; and particularly Smith, a veteran of the Manhattan Project, Institute Professor at MIT with a joint appointment in metallurgy and the humanities, and one of the world's outstanding authorities "on the history of technology in general."[79]

The task, as Kranzberg described it, was "to satisfy all the parties involved, or at least not widen the rift between the academic community and the Establishment."[80] By the time everyone had examined the evidence, the Joneses conceded that most "explicitly slanted" statements had been deleted from the labels—and yet they still saw "an almost total reluctance on the part of the Museum to give witness that Bell invented the telephone."[81] In private correspondence Smith remarked, "I like the tone of the exhibit and think that it gives a good picture of the environment in which the invention occurred and the many different schemes that were tried before the commercially successful solution appeared. It would be quite wrong to show Bell alone and not reflect other peoples' claims." And it would surely be wrong if Bell, "as an American and a regent of the Smithsonian, should be excused from historical criticism."[82]

No such provocative language appeared in Kranzberg's final report, delivered in the spring of 1968. First there was a bow to the museum: "We are particularly pleased that the exhibit shows certain aspects of the history of technology which are sometimes lost sight of by the public and even by some historians themselves. These include concepts of simultaneity of invention, the many problems involved in translating an idea into a workable device, and the description of how many people of different nations contribute to an innovation." Then, a few pages on, a bow to the critics: "Nowhere in the exhibit is it unequivocally stated that Bell actually produced the first practicable instrument and that the subsequent development of the telephone derived from improvements on Bell's original invention." Kranzberg went on to acquaint everyone with history of technology's cutting edge, the signal import of the "developmental factor," and then to affirm that "Bell was the 'effective inventor' of the telephone and that the subsequent growth of the telephone followed from his effective invention."[83]

The Joneses were dazzled. Such "a splendid contribution toward a solution of the problem," they wrote. Such "generous words about our work,"

79. Joseph Marion Jones to Multhauf, 25 September 1967; Kranzberg to Multhauf, 27 July 1967.

80. Kranzberg to Cyril Stanley Smith, 4 March 1968.

81. Joseph Marion Jones to Multhauf, 25 September 1967.

82. Cyril Stanley Smith to Elmer Belt, 21 August 1967. In later correspondence with Kranzberg (26 February 1968), Smith wrote, "I find myself reluctant to give Bell clear and unique priority for anything except the initiative and persistence to make a commercial instrument." To give him such priority "would be quite improper, indeed inexcusable in any museum of technology whose purpose was not nationalistic propaganda."

83. Kranzberg to Multhauf for distribution, 10 April 1968.

JULY
2001
VOL. 42

replied Kranzberg. "We committee members learned a great deal from our investigations of this interesting and complex problem, and, to judge from the response of the Smithsonian, it is evident that our report will lead to a more comprehensive and hence more accurate exhibit on the development of the telephone." Kranzberg had proven himself a master of tact. He had also staked an impressive claim to serving "the cause of historical scholarship and . . . our national museum."[84] He had placated the Joneses, with their threats of instigating a "full-scale review." And surely he had repaid part of the debt incurred for all the times he had invoked the cachet of the Smithsonian on behalf of the Society for the History of Technology.

This episode bore diverse fruit, all of it sweet. It engendered a new feature in *T&C*, exhibit reviews, the first of which appeared in 1968, far in advance of any other learned journal. It also ensured that outside advisory panels would become integral to the process of exhibit development at MHT. And it fostered positive perceptions of SHOT and of Kranzberg personally that reverberated back and forth across the Mall—years later, Kranzberg's "admirable" report was still fresh in the mind of Grosvenor and Ripley.[85] When Ripley and Blitzer first opened talks with Boorstin in 1969, one possibility was that he might take a research post at MHT. When he assumed the directorship instead, the research position, "senior historian," went to Multhauf, and this set a precedent. Before long Blitzer was courting Kranzberg with something similar in mind. Though flattered to have been asked to consider "possibilities of transferring my operations to the Smithsonian," Kranzberg declined a formal offer in March 1971 after it was trumped by the Georgia Institute of Technology.[86]

That was not the end of the matter, however, far from it. Two years later Blitzer invited Kranzberg to apply for the director's job when Boorstin

84. Joseph Marion Jones to Silvio A. Bedini, 8 July 1968; Kranzberg to Joseph Marion Jones, 16 July 1968. The disputed exhibit closed soon afterward, and not until 1976 was there a new telephone exhibit, this one focused on Bell's "experimental activity and his faith in the commercial and social value of the new communications medium"; Bernard S. Finn, "General Information," *Person to Person* (Washington, D.C., 1976), 3.

85. "I certainly highly applaud the report of the committee of the Society for the History of Technology (SHOT), chaired by Dr. Kranzberg"; S. Dillon Ripley to Melville Bell Grosvenor, 20 September 1973, RU 276, SIA, Box 45.

86. Multhauf Interviews, SIA, 100. Multhauf to Boorstin, 16 September 1969, RU 7467, SIA, Box 5. Multhauf told Kranzberg that Boorstin had shown an unexpected "thirst for action" that jibed with Blitzer's desire "to have his 'own man' as director"; 25 January 1970, RG 266, NMAH, Box 155. Kranzberg to Boorstin, 3 February 1971; Boorstin to Blitzer and Ripley, 16 March 1971; Kranzberg to Boorstin and Blitzer, 18 March 1971, RG 266, NMAH, Box 65. Though not the quintessentially disaffected academic that Boorstin was, Kranzberg had his reasons for being unhappy at Case after the merger with Western Reserve. In his contribution to "In Memoriam: Melvin Kranzberg" (n. 10 above), Carroll Pursell describes a situation wherein Kranzberg "was becoming something of a prophet without honor" (411). Kranzberg also pursued a provostship in California; Peter Drucker to Kranzberg, 29 July 1971, RG 266, NMAH, Box 89.

stepped down. Kranzberg recommended Hindle instead, but in 1978, when Hindle left, he *did* apply, dutifully filling out his Form 171. Hindle told friends that, "in terms of the character of this museum," Kranzberg was the best candidate, and Ripley offered assurances that *Technology and Culture* would be entirely welcome at History and Technology.[87] Following a strained interregnum under Otto Mayr, the director's job went to Roger Kennedy from the Ford Foundation in late 1979, but the welcome for *T&C* still held, and shortly thereafter Ripley would affirm Kennedy's plan to bid on sponsoring the editorship when Kranzberg relinquished it.

Within a decade of SHOT's founding, there was evidence that the society could be an effective ally to the museum and vice versa. A decade later this was obvious. Kennedy's commitment to underwriting the editorial office for three terms entailed a valuable subvention to SHOT, but the return was likewise valuable. There was a playful element to Kennedy's vision for the museum, which was sometimes misread as a lack of serious purpose. Sponsoring *T&C* sent a signal to the contrary, as did Kennedy's recruitments in the 1980s—Gary Kulik, Art Molella, Helena Wright, and Jeffrey Stine, to mention only those who became directly involved with the journal. The operative phrase was "broadening and maintaining our scholarly base."[88] Not to cast a skeptical eye on what was always a warm relationship, not at all, but Kennedy was fully aware that *T&C* provided a "set of connections" to which he could point whenever he was accused of pursuing one or another peculiar enthusiasm.[89]

Although Kranzberg's relationship with Kennedy was much different than with his predecessors, they proved to be soul mates from the moment they met, and Kranzberg was clearly intrigued by the challenge of energizing a national museum. In 1982 he made the short list for the director's job at the National Air and Space Museum (NASM) and may have assumed he had the inside track because of his service on behalf of the NASA History Committee.[90] He was wrong in his assumption, and it was not a defeat he took lightly. Yet he never let the Smithsonian out of his sights, and not just

87. Blitzer to Kranzberg, 28 March 1973, RG 266, NMAH, Box 119. Kranzberg to Blitzer, 8 May 1978, RG 266, NMAH, Box 195. Hindle to Lawrence H. Leder, 5 January 1978, RU 334, SIA, Box 14.

88. Avi Decter to Kennedy, 29 December 1979; Hindle to Kennedy, 10 December 1979; Multhauf to Kennedy, 8 January 1980, RU 7467, SIA, Box 5.

89. Kennedy to Kranzberg and Merritt Roe Smith, 8 January 1990, quoted in Arthur P. Molella, "Tilting at Windmills," *Technology and Culture* 36 (1995): 1004. One may assume that Kennedy had browsed in the correspondence concerning *Isis* and noted Frank Taylor's remark that Multhauf's editorship was "a great contribution to the development of a general awareness of Smithsonian activities in the history of science and technology"; Taylor to Multhauf, 21 September 1964, RU 334, SIA, Box 4.

90. David Challinor to Kranzberg, 22 July and 2 October 1982, RG 266, NMAH, Box 193. I. B. Holley to Kranzberg, 25 October 1982, RG 266, NMAH, Box 120. In 1970, Eugene Emme had gotten Kranzberg involved in lobbying to fund NASM.

JULY
2001
VOL. 42

because his "baby," *T&C*, had gone there. Only months before his death, in 1995, he became engaged in a lively exchange with Secretary Michael Heyman. With reference to Molella's disputed exhibit *Science in American Life*, Heyman had written that "history exhibitions by the new generation of curators" seemed to be designed not for the general public but instead "for peer historians at Georgia Tech and like institutions." "I doubt it," Kranzberg replied. "I don't know whether 'everyman' can understand it, but I'm sure Art had that in mind."[91]

In 1995, the year of Newt Gingrich, no such affirmation from academic regions carried much weight anywhere around Washington. And, after nearly four decades, the "special relationship" lay in ruins at the feet of Kennedy's successor. But we need to recall its significance for the discipline this journal represents.

* * *

At Case, Kranzberg had begun formulating his desires for a new discipline in the context of an elaborate proposal for a research institute, complete with library, archive, and oral history program; a crowded slate of seminars and conferences; an undergraduate and graduate curriculum; a periodical and occasional publications; a challenging research agenda; a staff of more than a dozen people—and an annual budget exceeding $150,000. His appeal for funding was almost entirely free of the cold war rhetoric that marked the appeal for the new museum, but it reflected some of the same anxieties: "the need for understanding the world in which we live."[92]

While these plans were too ambitious to materialize fully in Cleveland, some of them took shape in Washington. Think of the Dibner Library, the NMAH Archives Center, fellowships and conferences and that "collection" of historians. Even in 1978, with several graduate programs flourishing in academe, Hindle could still remark: "We have more strength in the history of technology, I believe, than any university."[93]

Of course, parts of Kranzberg's dream *did* materialize and thrive at Case, notably the graduate program and the periodical. In essence, Multhauf and Kranzberg worked on the same edifice in two different locations. Responding to Kranzberg's initial call for advice about a new program, Multhauf had written: "It is remarkable that nothing of the sort has existed heretofore. We are undertaking here [at the Smithsonian] a program some-

91. Kranzberg to I. Michael Heyman, 27 June 1995, copy in author's files.

92. Kranzberg to John Hrones, 17 March 1958, RG 400, NMAH, Box 1. There is a rich file here pertinent to Kranzberg's proposal for a Center for the Study of Technology and Society at Case.

93. Hindle to Charles Frankel, 31 January 1978, RU 334, SIA, Box 6. Two research centers at the Smithsonian are also worth noting: the Eisenhower Institute, founded in 1974 but disbanded in the 1980s following the death of its director, Forrest Pogue, and the Lemelson Center, founded in 1995 under the directorship of Art Molella.

what similar, although we are delayed in the implementation of any elaborate program by the necessities attendant upon the planning of a new museum to be built here in the next three or four years. I'm sure that the danger of having too many centers of activity in this field is a very remote one."[94] *A program somewhat similar*—how about a serial publication! One of Multhauf's cherished beliefs was that curatorial authority rested on published scholarship, and so it was that *Contributions from the Museum of History and Technology* began appearing *even before* the first issue of *T&C* (and years before MHT opened). Though issued on an irregular schedule, ultimately the bound volumes would comprise nearly one hundred monographs, mostly by Multhauf's people, many of indelible value.

Kranzberg had never been particularly attuned to history focused on artifacts, and was even known to lament "the constant struggle I must wage against those who want to limit the history of technology to a narrative account of the development of the 'hardware'."[95] But he could see the *Contributions* addressing topics that were entirely fresh. After hearing Ferguson's "John Ericsson and the Age of Caloric" at the first SHOT meeting in Washington in 1958, he went right after it for *T&C* and was disappointed to learn that it was committed to the *Contributions*. Soon afterward, though, he landed Bedini's "Compartmented Cylindrical Clepsydra," which Multhauf termed "a kind of paper I thought only the Smithsonian would publish."[96] And so the synergism. In the *Contributions*, Kranzberg knew that MHT staffers such as Chapelle, Vogel, Ferguson, and White (who had fourteen articles among them) were publishing material that would have been fine for *T&C*. At the same time, he understood how much help he got with *T&C* from people at the museum, directly and indirectly, and he prized Multhauf's hands-on involvement, working alongside Condit as a

94. Multhauf to Kranzberg, 10 June 1957, RG 266, NMAH, Box 155.

95. Kranzberg to Peter Drucker, 18 May 1961, RG 266, NMAH, Box 89.

96. Kranzberg to Ferguson, 12 January 1959; Ferguson to Kranzberg, 20 January 1959, RG 266, NMAH, Box 99. Multhauf to Kranzberg, 23 May 1962, RG 266, NMAH, Box 155. Because such a title summons up the unfashionable image of internalism, it seems worth mentioning that the distinction between internal and contextual is less significant than the distinction between history with and without a "*problematique*." Plenty of contextual history merely "fills gaps," in Michael Kammen's expression, whereas the best history of any kind is "driven by anomalies, puzzles, discrepancies, [and] contradictory data or interpretations"; "An Americanist's Reprise: The Pervasive Role of *Histoire Problème* in Historical Scholarship Concerning the United States Since the 1960s," *Reviews in American History* 26 (1998): 6. One can see this in Bedini puzzling over the appearance of a device in various countries at various times, "yet apparently with little or no relation between these appearances" ("The Compartmented Cylindrical Clepsydra," *Technology and Culture* 3 [1962]: 115–41, quote on 135), or Battison asking questions about the capabilities of the Whitney armory (n. 43 above), or Chapelle analyzing whether the USS *Constellation* is really a frigate of the 1790s or an essentially new vessel of the 1850s (Chapelle and Leon D. Pollard, *The Constellation Question* [Washington, D.C., 1970]).

JULY
2001
VOL. 42

principal editor of the journal until 1965. Multhauf even provided most of an entire issue, a set of essays on "Museums of Technology" by Bedini, Vogel, Ferguson, and Finn, plus his own revealing history of MHT's Department of Science and Technology.

Not that Multhauf and Kranzberg were always in perfect harmony. Indeed, they had a longstanding disagreement about the nature of the history of technology. From the beginning Multhauf disliked the name of the journal, and controversy over the name epitomized a more fundamental point of contention. He regarded technology's "relations with society and culture" as a sociological matter, not a historical one. What he (and many of his MHT recruits) believed to be most needed were "solid technological studies," and there work had scarcely begun.[97]

For many years this discord was tempered by the good will of two dear old friends, but in the early 1970s it took a new turn as Multhauf grew increasingly perturbed with the content of the journal and even with Kranzberg's management, particularly the delays in processing submissions. Others shared the same concerns, yet—given his singular relationship with Kranzberg—everybody regarded Multhauf as the one person who could call him to task before the SHOT Executive Council. In December 1972 the council convened at MHT amid a buzz about a "High Noon" encounter, but Multhauf kept his peace. Later he confessed privately to Kranzberg that he had been "sort of deputized to raise questions at the Council meeting about your management of the journal" and could not do it. Nevertheless, he warned, "the questions are real" and "this is going to cause trouble for you."[98]

Trouble arrived just before the 1973 meeting in San Francisco in the form of a stinging missive, written by Otto Mayr but known to embody Multhauf's concerns as well. Among other things, Mayr accused Kranzberg of encouraging "the loosest kind of pop-philosophy" and publishing too many articles "that do not represent, much less lead, the discipline of 'history of technology'." None of his critique was without substance, and yet there was a tone that distressed some of Kranzberg's friends, as when Mayr implied that he prohibited access to the *T&C* files. Mayr had come to MHT in 1969 after a ringing endorsement from Kranzberg. One may assume that

97. Kranzberg quoting Multhauf on "technological process," draft, March 1958, RG 400, NMAH, Box 1. There is nearly as much lore attendant on the naming of the journal as on the inception of the society. In the final of three votes on the matter, with six titles up for consideration, *Technology and Culture* tallied eighty-five, *Journal of the History of Technology* sixty-seven, and *Vulcan* twenty-four. After hearing numerous warnings about the dangers of *Technology and Culture*, John Kouwenhoven wanted to know "who said engineers are 'wary of the word culture'?" "Questionnaire on Name of Quarterly Journal for the Society for the History of Technology," RG 400, NMAH, Box 2. Kranzberg to William Fielding Ogburn and Robert Multhauf, 17 March 1959, RG 266, NMAH, Box 166.

98. Multhauf to Kranzberg, 12 January 1973, RU 7467, SIA, Box 5.

Kranzberg was hurt. But he responded with patience and wit: "Ye Gods, do all you people in Washington suffer from the Watergate syndrome? Any and every member of SHOT is free to look at any and all the items in our files; we have no secrets, and I make no claim to 'executive privilege'."[99]

More important, Kranzberg showed a realistic sense that both the society and the journal were headed for inevitable transitions—new directions, perhaps—and, indeed, it was not long before he was relinquishing more and more of his old responsibilities at the behest of the council. While he did so with little outward sign of disappointment, those near him could feel his pain. Everyone knew that Kranzberg "relished being close to the action," but there was something else. Surely he could not forget all the years when everyone had been perfectly happy to let him "do all the work."[100] In such situations people do not always yield power gracefully. It might have happened differently with SHOT had the challenge come from another quarter, where there were no cherished confederates. But there was simply too much mutual achievement, too much accrued good will, too much history. Hence an irony: precisely because there was such a special relationship, Kranzberg was disinclined to resist when people began telling him it was time to step to the wings.

* * *

A concern with origins once captivated historians of technology. Even though such "precursoritis"—as Derek Price tagged it—is now passé, it may still be useful to show how developments presumed to be recent actually have more remote antecedents. This narrative has addressed a productive collaboration while also suggesting that there has been contention about history and technology and culture ever since the profession donned academic robes (or curatorial white gloves). There was contention with citizens who saw themselves as aggrieved stakeholders. There was contention within the discipline about needs and opportunities. And there was contention about technology itself. The discipline of the history of technology developed in the context of a clash that dominated world politics for half a century, the cold war, and, even more important, in the context of a real and terrible war in Southeast Asia that would eternally alter perceptions of

99. Mayr to Kranzberg, 17 December 1973; Kranzberg to Mayr, 21 December 1973, RG 400, NMAH, Box 12. Kranzberg to Robert Vogel, 27 March 1968, RG 266, NMAH, Box 148. Two subsequent events are noteworthy. In 1977, Kranzberg told John Staudenmaier that the problem had to do with his "acting too much like a clown" ("In Memoriam: Melvin Kranzberg" [n. 10 above]), but there is no evidence of this is the correspondence. Then, in 1992, Mayr elected to conclude his Leonardo da Vinci Medal acceptance by saying that "the older I get the more I recognize to what extent SHOT owes its best features to its first editor and secretary."

100. The two quotes are from Gus Giebelhaus's contribution to "In Memoriam: Melvin Kranzberg" (n. 10 above), 420, and Multhauf's, 406.

JULY
2001
VOL. 42

technology. When SHOT was founded in 1958, technology's storytellers were optimists. A decade later there was less about which to be optimistic. Perhaps the space program, born at the same time as SHOT? Not everyone saw it the way Kranzberg did, or Tom Wolfe did in *The Right Stuff*. After Apollo 11, Lewis Mumford decried the folly of "keeping a team of human beings riskily alive, barely functioning, at inordinate expense, on an uninhabitable planet, in order to accomplish an empty, if not intentionally destructive feat."[101]

Rosalind Williams has written of "Mumford's lifelong quest to articulate the distinction between 'good' machines and 'bad' ones."[102] By the time *The Pentagon of Power* appeared, however, it was hard to see beyond "blanket condemnations" (Kranzberg's apprehension), or to fail to see that such condemnations were gaining adherents throughout academe, not least among historians—or, rather, among historians who were not specialists in the history of technology. Few of SHOT's founders were willing to follow Mumford all the way to the dark side; Kranzberg and Multhauf surely were not. Many of the leading lights still saw—still see—reasons for celebrating technology. One can appreciate the reasons while also appreciating why the discipline has only a precarious foothold in the broader reaches of the academy. This is not because the standards of scholarship are lax, as Lynn White had remarked in the 1950s, but for quite different reasons having to do with the context in which the discipline emerged: deepening pessimism about technology itself and growing hostility from scholars. But that is a different story for another time. Mel Kranzberg, above all, sought to build bridges. In reading through the paper trail from SHOT's early days, one is awestruck by the range of people to whom he reached out: engineers and scientists, business executives and statesmen, public intellectuals and popularizers. Scholars, of course. But scholars were dispersed across the land, one here, another there, hundreds or thousands of miles distant. Only at the Smithsonian was there any kind of critical mass, a real synergistic potential.

No, there never was any "danger of having too many centers of activity," but now there is that complete turnabout promised by Lawrence Small, and the specter of there being one fewer. Not to forget, then, that there on the Mall in Washington one *still* can find "the largest collection of historians of technology," just as Kranzberg did in 1968, and that must count for a lot. At this point, it is perhaps most heartening to keep two things in mind. Carl Mitman and Frank Taylor tried for more than thirty years to get a new museum authorized. Then Bob Multhauf took it in a direction that neither

101. Lewis Mumford, *The Myth of the Machine: The Pentagon of Power* (New York, 1970), 305.

102. Rosalind Williams, "Lewis Mumford as a Historian of Technology in *Technics and Civilization*," in *Lewis Mumford: Public Intellectual*, ed. Thomas P. Hughes and Agatha C. Hughes (New York, 1990), 47.

anticipated, improvising a "joint action" with Mel Kranzberg that made a remarkable difference to technology's storytellers. Political contexts have changed in surprising ways, and we can be sure they will continue to do so.

Afterword

At UCLA, I had two major professors: John Caughey, whom I have already mentioned in note 12, and John Burke, whom I have not. A specialist in a different realm, the American West, Caughey did not know Kranzberg, though he occasionally provided him with advice through Lynn White, who occupied the adjoining office in Ralph Bunche Hall. But Burke and Kranzberg were the best of friends, and, like many another of Mel's friends, he found him endlessly fascinating. In the spring of 1968 Burke asked the students in his seminar to explore the question of how young organizations gain momentum. We each picked one—mine was the Society of Automotive Engineers—and then tried to determine how things worked at the start. Was the SAE a one-man show? It was, to some extent. At the time I did not understand that Burke's question had been inspired by watching Kranzberg in action, and certainly I had no inkling that one day I would ask the same question of SHOT. A one-man show, yes, but it is not that simple: There was also Bob Multhauf's "program somewhat similar" at the Museum of History and Technology. Burke was as good a friend of Bob's as he was of Mel's, so of course he knew something about the "very special relationship." But I imagine I've unearthed a lot that he did not know, and I wish I could tell him about it now.