The End of the Army Space Program: Interservice Rivalry and the Transfer of the von Braun Group to NASA, 1958–1959

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Michael J. Neufeld*

Abstract

The Army–Air Force struggle over ballistic missiles and space policy in the late 1950s was one of the worst episodes of U.S. interservice strife during the Cold War. The papers of General J. B. Medaris provide an important new window onto the process by which the Army avoided transferring its ballistic missile and space capability to the National Aeronautics and Space Administration (NASA) in 1958, and then reluctantly did so in 1959, in part to prevent the Air Force from obtaining it. Medaris's papers illustrate how interservice rivalry shaped the actions of the Secretary of the Army and the leadership of Army Ordnance.

ON 21 October 1959, the White House announced that the heart of the U.S. Army's space capability, Dr. Wernher von Braun's Development Operations Division of the Army Ballistic Missile Agency (ABMA), would be transferred to the year-old, civilian National Aeronautics and

* The author wishes to thank Roger Launius and David DeVorkin for their comments on drafts of this article; David Spires, Dwayne Day, and Jacob Neufeld for their assistance in supplying documents; and Thomas McFarland (Florida Institute of Technology) and Charles Reeves (NARA SE Region) for their archival expertise.

Michael J. Neufeld is a curator in the Space History Division of the National Air and Space Museum, Smithsonian Institution, Washington, D.C. His publications include *The Rocket and the Reich: Peenemünde and the Coming of the Ballistic Missile Era* (1995) and *The Bombing of Auschwitz: Should the Allies Have Attempted It?* (2000; paperback, 2003), co-edited with Michael Berenbaum. *Wernher von Braun: Dreamer of Space, Engineer of War,* a full-length biography of the German-American rocket engineer, is scheduled for publication in fall 2007.

Space Administration (NASA). With this act President Dwight D. Eisenhower essentially ended the first U.S. Army space program, which had arisen only two years previously in reaction to the stunning Soviet successes with the Sputnik satellites. In doing so, the President fulfilled the long-held desire of the U.S. Air Force (USAF) to gut the Army's capability in long-range missiles, yet his decision also denied to the USAF von Braun's fabled rocket-engineering group, which the air service had belatedly decided it wanted in September 1959. From beginning to end, the Army's venture into space was conducted within the context of a heated interservice rivalry, one that on balance was injurious to U.S. national interests.

In this era of joint commands controlling a large fraction of the armed forces, with special emphasis placed on fielding interservice, combined-arms forces in overseas operations, it is becoming more difficult to comprehend the bitter rivalries that divided the Department of Defense during the early and middle phases of the Cold War. The divisions among the services over "roles and missions" were greatly exacerbated by the coming of atomic weapons in 1945, the Air Force's separation from the Army two years later, and the junior service's ascension to primacy as the main deterrent force against the Soviet Union. Although not quite as bitterly contested as the Navy–Air Force battle over strategic aviation that led to the "revolt of the admirals" in 1949, the Army–Air Force struggle over intermediate-range ballistic missiles (IRBMs) and space policy in the late 1950s was one the worst episodes of interservice strife during the postwar era. This fight, into which the Navy was also drawn because of its missile programs, has been the subject of one full-length study, Michael Armacost's still valuable *Politics of Weapons Innovation* (1969), and has been more briefly discussed in several histories of the missile and space races.[1]

Yet Armacost had access only to published sources such as congressional hearings, and more recent historians have primarily used Air

1. Jeffrey G. Barlow, *The Revolt of the Admirals: The Fight for Naval Aviation, 1945–1950* (Washington: Naval Historical Center, 1994); Michael H. Armacost, *The Politics of Weapons Innovation: The Thor-Jupiter Controversy* (New York: Columbia University Press, 1969); Harvey M. Sapolsky, *The Polaris System Development* (Cambridge, Mass.: Harvard University Press, 1972); Walter A. McDougall, *The Heavens and the Earth* (New York: Basic Books, 1985), 198–99; Jacob Neufeld, *The Development of Ballistic Missiles in the United States Air Force* (Washington: Office of Air Force History, 1990); John C. Lonnquest and David F. Winkler, *To Defend and Deter: The Legacy of the United States Cold War Missile Program* (Champaign, Ill.: U.S. Army Construction Engineering Research Laboratories, 1996); R. Cargill Hall and Jacob Neufeld, eds., *The U.S. Air Force in Space* (Washington: USAF History and Museums Program, 1998); David N. Spires, *Beyond Horizons: A Half Century of Air Force Space Leadership*, revised ed. (N.p.: Air Force Space Command in association with Air University Press, 1998).

Force documents and have delved little into the tangled story of the Army's loss of its premier missile group to NASA. The long-overlooked papers of Major General John Bruce Medaris, first commander of ABMA from 1956 to 1958, and first chief of Army Ordnance Missile Command from 1958 to 1960, provide an important new window onto the process by which the Army fended off transferring its ballistic missile and space capability to NASA in 1958, and then reluctantly did so in 1959, in part to prevent the Air Force from obtaining that capability. Medaris's papers vividly illustrate how interservice rivalry shaped the actions of the Secretary of the Army and the leadership of Army Ordnance, and how in less than a dozen years since the separation of the Army and Air Force, the two had grown so far apart institutionally that it was difficult for them even to share the same military base. Moreover, his papers provide useful insights into civil-military relations in the later 1950s, as the Eisenhower administration built up NASA in part because of the embarrassing public spectacle of the interservice battle over space, in the end transferring a major military entity, ABMA, out of the Defense Department altogether—an action which has no recent parallel. Finally, Medaris's papers, combined with other archival sources, help illuminate the thinking of Wernher von Braun, the German-American rocket engineer and space visionary, whose ambivalence about NASA went much deeper than he or his official biographers were later willing to admit.[2]

The NASA Takeover Attempt of Fall 1958

Because the battles over the transfer of ABMA to NASA took place in two distinct phases, fall 1958 and summer-fall 1959, separated by almost a year, it makes sense to treat the two separately. But some historical background is needed to understand these events. The roots of ABMA and of the interservice missile rivalry go back to the end of World War II, and Army Ordnance's transfer of about 120 German rocket engineers under von Braun to the United States under Project Paperclip. In 1950 they became the core of the Army missile group at Redstone Arsenal in Huntsville, Alabama. Ballistic missiles held less appeal for the pilot-run Air Force, in which manned aircraft had first priority, followed by winged

2. The Medaris Papers are located at the Evans Library of the Florida Institute of Technology in Melbourne, Florida (hereinafter cited as MP/FIT). I am grateful to freelance writer Paul Dickson for pointing out this long-forgotten collection to me at the suggestion of Roger Launius, and to Thomas McFarland of the library for providing me with much assistance in using the Papers. See also John B. Medaris, *Countdown for Decision* (New York: Putnam, 1960); and for what amounts to the official biography of von Braun, Ernst Stuhlinger and Frederick I. Ordway, III, *Wernher von Braun: A Biographical Memoir* (Malabar, Fla.: Krieger, 1994) 150–56.

cruise missiles. Only when U.S. intelligence perceived the Soviet rocket program as a growing threat did the Air Force begin to spend significant money on ballistic missiles. The Eisenhower administration gave crash priority to the USAF's Atlas intercontinental ballistic missile (ICBM) in 1954, and in late 1955, authorized urgent parallel programs to produce fifteen-hundred-nautical-mile IRBMs to be deployed from Europe as a stopgap. The Air Force Western Development Division, later Ballistic Missile Division, under General Bernard A. Schriever, was to develop the Thor IRBM based on Atlas technology. Von Braun's Army missile group, reorganized under General Medaris as the ABMA, was to create the Jupiter IRBM in conjunction with the Navy, which wanted a ship- or submarine-launched version. Although the Air Force had its own factions, all agreed that the Army had no business building long-range strategic weapons, which they viewed as USAF turf. Interservice rivalry was further stoked by the Thor-Jupiter competition. In late 1956, the Jupiter project was almost fatally wounded when the Navy pulled out to pursue its own Polaris solid-fuel submarine-launched missile, and Defense Secretary Charles E. Wilson ruled that the Army could deploy no missiles with a range of more than two hundred miles. Thus, the Air Force would have to field Jupiter, assuming it did not succeed in strangling it politically. Only the entrenched power of the Army and its congressional friends, the fame and popularity of Wernher von Braun, and the public pressure produced by Cold War anticommunism fended off that possibility before Sputnik.

The Soviet launches of the two Sputniks in fall 1957 created a U.S. Army space program on top of its missile program. The public outcry in the United States over the Soviet feats of orbiting the world's first satellite, and the first to carry an animal (the dog Laika), led to the unleashing of the satellite project von Braun had first formulated in mid-1954. That program had lost out in 1955 to the Navy's Vanguard scientific satellite project, but the ABMA kept the capability alive through a project to test reentry technology for Jupiter. After the ignominious failure of the first Vanguard orbital launch attempt on 6 December 1957, the Army succeeded in launching the first U.S. satellite, Explorer I, on 31 January 1958, further assuring the future of the Jupiter program and the von Braun group. During that year Huntsville put two more satellites in orbit in collaboration with the California Institute of Technology's Jet Propulsion Laboratory (JPL), which was on contract to Army Ordnance. In the process, the Army and JPL garnered considerable national acclaim for their accomplishments.

Although the Eisenhower Administration had not yet defined the proper roles of the services in space, and the Army was in violation of no set policy, many even outside the Air Force asked the legitimate question: what was a military service defined by ground warfare doing with a

From Herblock's Special for Today *(New York: Simon and Schuster, 1958). (Courtesy of the Herb Block Foundation.)*

space program? One of them was the first Administrator of NASA, Dr. T. Keith Glennan, who began work even before the agency's official creation on 1 October 1958. NASA was built upon the foundation of the National Advisory Committee for Aeronautics (NACA), essentially an aeronautical research establishment, plus the Vanguard group transferred

from the Navy. It lacked, however, a major rocket development center or one with much electronics expertise. Glennan cast acquisitive eyes on the two foundations of the Army program: the von Braun group at ABMA, and JPL in Pasadena, California. Two weeks earlier, on 18 September, he had visited Huntsville with his deputy, the last Chairman of NACA, Dr. Hugh Dryden. Although the two said they did not want to break up ABMA, one of Medaris's officers claimed that "Glennan must have said to him at least 8 or 10 times things like 'What the hell is the Army doing in this business; what are you in the space and satellite business for'"?[3] The NASA chief also took an instant dislike to Medaris, whom he described in a memoir as "a martinet, addicted to 'spit and polish.'"[4]

Glennan, on leave from the presidency of Case Institute of Technology, would prove to be a good NASA Administrator, but his impolitic comments in Huntsville showed a certain naïveté. Forging ahead optimistically, he secured the cooperation of President Eisenhower's science advisor, Dr. James R. Killian. On 30 September Killian met the President and secured assent in principle to transferring part of ABMA to NASA, but Ike foresaw "opposition from the Army."[5] Glennan further got the cooperation, he asserts, of Defense Secretary Neil H. McElroy and Deputy Secretary Donald A. Quarles. Feeling that he was on the verge of winning, on 10 October he went to see Quarles, and Quarles asked him to go down the hall to meet the Secretary of the Army, Wilber M. Brucker, a folksy former Michigan governor. Glennan describes what happened next:

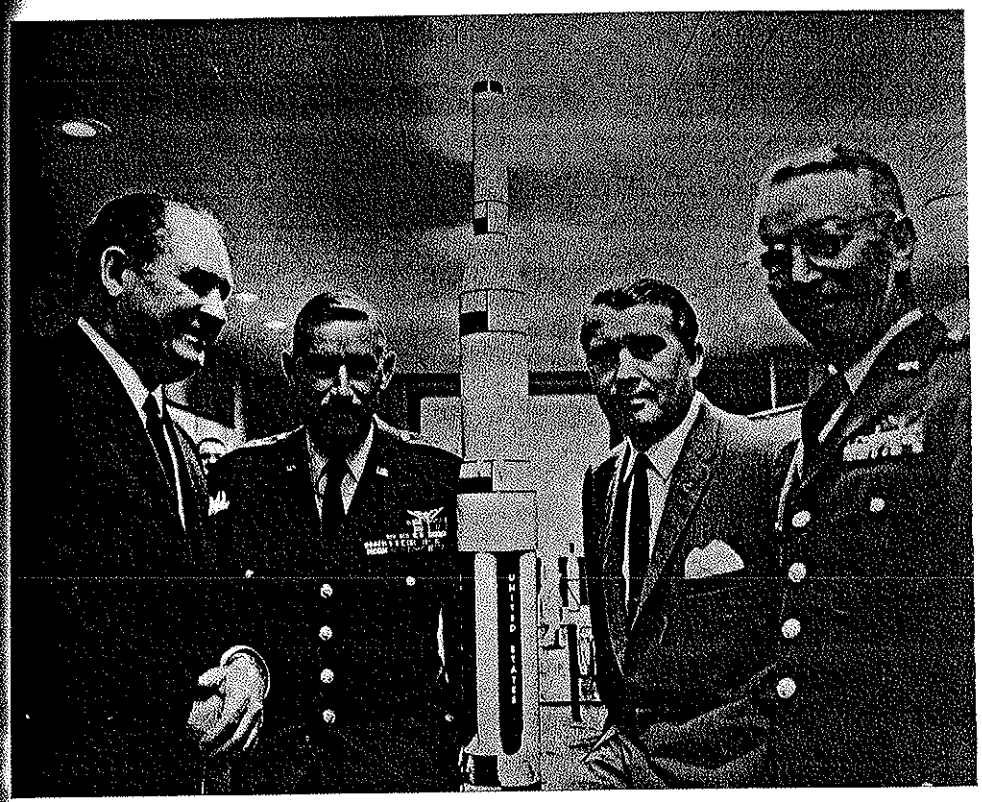
> I began, in a halting fashion, to discuss the situation and finally made the proposal that we take over a substantial portion of von Braun's operation and the Jet Propulsion Laboratory. It immediately became apparent that "fools rush in where angels fear to tread."
>
> Brucker became irate, and while stating the desire of the Army to be helpful, said he could not countenance . . . "breaking up the von Braun team." To an extent, this was a proper characterization. I had not realized how much of a pet of the Army's von Braun and his operation had become. He was its one avenue to fame in the space business. . . . I finally left with my tail between my legs.[6]

3. Medaris Daily Journal, 18 and 29 September 1958 (quote from latter), MP/FIT.

4. J. D. Hunley, ed., *The Birth of NASA: The Diary of T. Keith Glennan* (Washington: NASA, 1993), 9. Glennan's memoir of 1958–59, which precedes his diary of 1960–61, gives the date of the Huntsville visit as 17 September, but this is contradicted by the Medaris Daily Journal. There are other minor inconsistencies with dates in the Glennan memoir, so when possible I cite original documents.

5. Gen. Andrew Goodpaster, "Memorandum of Conference with the President, September 30, 1958, 9:30 AM," Ann Whitman File, DDE Diary Series, Box 36, Staff Memos Sep 58, Dwight D. Eisenhower Library, copy from the files of the Space Policy Institute, George Washington University, Washington, D.C. (with thanks to Dwayne Day).

6. Hunley, *Birth of NASA*, 10.



NASA Administrator T. Keith Glennan, Major General J. B. Medaris, Dr. Wernher von Braun, and Brigadier General Jack Barclay meet at Redstone Arsenal in Huntsville, Alabama, probably on 22 October 1959, the day after the announcement of the transfer to NASA. In the middle is a model of a three-stage version of the Saturn booster. (U.S. Army photo, courtesy of the National Air and Space Museum, Smithsonian Institution.)

A few minutes after the Brucker meeting, Major General August Schomburg of Army Ordnance called Medaris and told him that Glennan had asked for von Braun and twenty-two hundred people, about half of Development Operations Division. According to Schomburg, Brucker asked if he had a plan, and Glennan "reluctantly said no, and Mr. Brucker said he couldn't do anything without a plan." Hours later Medaris called JPL Director Dr. William H. Pickering and told him that he thought science advisor Killian was behind it and if he "keeps up this damn fool pressure on the President about separation of military and space, the Great White Father is liable to issue a directive and get it done." Moreover, Medaris

said, "the A[ir] F[orce] would be happy to cancel [Jupiter]—[he] think[s] they are helping this"—which was, for once, not true.[7]

Medaris responded with an old Washington trick: the anonymous leak. While in the national capital on 14 October, he met with a friend, the *Baltimore Sun*'s military correspondent, Mark Watson. The next morning, under a front page headline, the *Sun* carried his story that the Huntsville "scientists," led by von Braun, were opposed to "breaking up" his team, which would have serious consequences for Army missile development. Glennan was furious. The *Sun* carried a second story on the sixteenth, in which von Braun himself said: "It would seem something less than prudent to risk the dissolution of such an asset at a time when the national security and prestige demand a unified effort to achieve and maintain supremacy in rocket and space technology."[8] By "dissolution" he was alluding to the real possibility that he and his top managers would disperse to much better paying industry jobs, rather than accept the transfer.

It is apparent that Glennan had made a fundamental mistake in asking for half of von Braun's shop, but the NASA Administrator was operating within the budget-conscious constraints of Ike's space policy, which did not countenance the all-out race with the Soviets demanded by critics. From the standpoint of the ABMA, Glennan's proposal looked like a recipe for disaster. Von Braun's Development Operations Division had 3,925 employees, and the rest of ABMA had 1,081 mostly administrative personnel, for a total of 5,006. Because it was an arsenal organization, with robust in-house development and manufacturing capability—a fact heavily criticized by the Air Force and its allies in the aircraft industry—separating out 2,100 or 2,200 people would have been long, messy, and expensive, necessitating dividing the labs and reconstructing support services.[9] Von Braun explained his view in a 16 November letter to his parents:

> Because NASA was tasked quite officially from the President and Congress with taking over all spaceflight projects, it is plain that we would be all too pleased to work for them. The trouble was only that NASA's (for us very flattering) wish to take over the whole thing was impossible for lack of money, and thus someone had the genial idea to slice through the shop and take only half. The question was then: Which half? Only the brains, so that the brains wouldn't have any

7. Medaris Daily Journal, 10 October 1958, MP/FIT.

8. Ibid., 14 October 1958; Medaris, *Countdown*, 246; *Baltimore Sun*, 14 and 15 October 1958; Hunley, *Birth of NASA*, 11.

9. Medaris Daily Journal, 10 and 16 October, 4 November 1958, MP/FIT; Ordnance memoranda, 15 and 20 October 1958, file "Army Support to NASA," Box 90, E. 1039A, Record Group (RG) 156, National Archives and Records Administration, College Park, Maryland.

> hands with which to build? Or only half of the pyramid, sliced from top to bottom? How could one then have dealt with a test stand with its crew or a guidance laboratory? On top of that, we had urgent military projects, above all Jupiter, to finish, and a radical internal reorganization would have seriously delayed these jobs.[10]

Glennan's plan thus appeared ill-advised, so it was easy for von Braun and his engineers to join Medaris and the Army leadership in protesting, in spite of their enthusiasm for space. Although maneuvering continued for some time, it soon became apparent that Glennan had lost the public relations battle with ABMA. On 3 December 1958, the Army and NASA concluded a peace treaty, a cooperation agreement in which ABMA would work on contract in booster development. Glennan won, however, on the issue of JPL, which was transferred to NASA the same day. In spite of sympathetic conversations between Pickering and Medaris, the Caltech trustees and the JPL scientists and engineers were more than happy to get the laboratory away from military dominance and into NASA as the center for lunar and planetary exploration.[11]

On 16 January 1959, six weeks after the Army-NASA agreement, Wernher von Braun wrote a fascinating "Personal-Confidential" memo to General Medaris and his deputy, revealing what he and his overwhelmingly German laboratory directors thought about NASA. In spite of what he had written to his parents, the famous rocket engineer had never been enthusiastic about it or its precursor, NACA. Although he had supported an American Rocket Society campaign for a centralized space agency in 1957, before Sputnik, and post-Sputnik plans of a similar nature, he probably saw any such agency as military. NACA seemed to him a slow-moving research organization that would hardly serve as the core organization for "the conquest of space"—a feeling earlier shared by many at JPL. Key NACA leaders like Chairman Dryden in turn saw him as a spendthrift and self-promoting publicity seeker as the result of his highly public campaigns for elaborate space programs since 1952. It was a fundamental clash of styles—the media star versus the sober, gray engineers of NACA—notwithstanding the fact that von Braun was a highly skilled, but quite conservative engineering manager on his own projects.[12]

10. Wernher von Braun to parents, 16 November 1958, NL 1085 (Papers of Magnus von Braun, Sr.), Nr. 84, Bundesarchiv Koblenz, Germany (my translation).

11. NASA-Army Agreements, 3 December 1958, in *Exploring the Unknown*, ed. John M. Logsdon (Washington: NASA, 1996), 2:287–90; Clayton Koppes, *JPL and the American Space Program* (New Haven, Conn.: Yale University Press, 1982), 94–99; Medaris, *Countdown*, 247.

12. Von Braun to Barclay and Medaris, 16 January 1959, Personal and Confidential Correspondence 1959, MP/FIT; Krafft Ehricke memo to "All Members of the SFTC" of ARS, 3 June 1957, and von Braun to Ehricke, 6 September 1957, in file

His January 1959 memo, entitled "Team Stability," was based on discussions he had held with his laboratory chiefs and key managers during the Christmas period, and presented a rather alarmist picture of "the very imminent danger of loss of a number of our key scientists and engineers" due to "highly attractive and lucrative offers from industry." Such offers were "not new," but "frustration is . . . rather widespread." With the Jupiter program passing its peak and the Air Force certain never to assign a ballistic missile project to Huntsville after deploying that weapon, and the new Army solid-fuel Pershing missile assigned to a prime contractor, rather than being developed in-house, it was clear that almost all future work would come from NASA and ARPA—the Advanced Research Projects Agency—a Defense Department organization formed in early 1958 to run military space programs. The question of transferring them to NASA might well come up again. Based on his discussions with his deputies, von Braun instead proposed that "rather than becoming attached to another government agency . . . where we would again have to operate under all the handicaps" of the civil service, "such a transfer would be the logical moment to convert our organization from a government agency to a company-operated industrial plant." Von Braun explained:

> The reason for this is *not* lack of confidence in NASA as such, or in Dr. Glennan's leadership. It is rather the fear of all our accomplishments with the Army, won over so many years of struggle, to adapt to Civil Service procedures at least half-ways to our unusual needs, would be lost if we were suddenly (and as an orphan child adopted into an existing family!) confronted with the old, well-entrenched NACA bureaucracy wherein most of our administrative accomplishments and streamlined procedures are unknown. In other words, the aspect of "having to fight the war all over again" would be so depressing to our lab chiefs that they would prefer to take a less worrysome [*sic*], less frustrating and better-paying job with some existing missile contractor.[13]

After elaborating at length on the frustrations with the civil service, the feeling that the U.S. Air Force would fight to restrict ABMA funding,

"A.V. Grosse Action," Box 42, and ARS Board of Directors meeting, 2 October 1957, and attached Space Flight Program in "American Rocket Society 1957," Box 40, both Wernher von Braun Papers, Library of Congress, Washington, D.C.; Medaris Daily Journal, 10 February 1958, MP/FIT; Koppes, *JPL*, 97; Alex Roland, *Model Research: The National Advisory Committee for Aeronautics, 1915–1958* (Washington: NASA, 1985), 1:298; Robert C. Seamans, *Aiming at Targets* (Washington: NASA, 1996), 93; John L. Sloop, *Liquid Hydrogen as a Propulsion Fuel* (Washington: NASA, 1978), 212–13; "Notes on interview with John L. Sloop, . . . 14 November 1969," file 2556, Historical Reference Collection (HRC), NASA History Office, Washington, D.C.

13. Von Braun to Barclay and Medaris, 16 January 1959, Personal and Confidential Correspondence 1959, MP/FIT.

and the temptations of higher pay in a better climate than Alabama's, he concluded that he and the lab chiefs needed to discuss with General Medaris and his ABMA chief, Brigadier General John A. Barclay, the possibilities of "convert[ing] our operations at the proper time from an Army arsenal-type operation to an industry-operated plant which would serve both the Department of Defense and NASA."[14] He did not mention that this was essentially what happened to the Peenemünde group in 1944, when the German Army and the Speer Ministry had turned von Braun's development group into a government corporation to keep it out of direct control by Heinrich Himmler's SS. Medaris apparently did not respond in writing to the memo, but in the months afterward subordinates of von Braun informally discussed an industrial takeover with Raytheon and with Solar Aircraft in California "to rescue them from NASA."[15] The proposal was fundamentally unrealistic, however, as there was little likelihood of the U.S. government selling off or privatizing a major civil-service-run defense agency in 1959, even though transfers from the military to civilian agencies were on the table. Eisenhower may have wanted to restrain federal budget growth based on a traditional conservative ideology, but he was not dealing with a Republican right that wanted to privatize government services, as would later be the case.

Saturn, the Air Force, and the Transfer to NASA, Fall 1959

Coincidentally, four days after von Braun's closely held memo, of which only four copies were made, one of Administrator Glennan's key advisors, Wesley L. Hjornevik, recommended in a similarly restricted document that "we should move in on ABMA in the strongest possible way." Glennan, however, had been burned, and according to Medaris's memoirs, had promised not to try again.[16] The issue reemerged in August-September 1959 unbidden as a result of complicated maneuvering inside the Defense Department regarding the future of military space programs. This maneuvering can be sorted into two separate but interrelated strands: the future of ABMA's heavy booster program, Saturn, and the overall organization of U.S. military space. In both strands, the Air Force figured heavily.

Saturn emerged in 1958 as a result of discussions between ARPA and ABMA about how to develop a large booster using a cluster of rocket engines already available, or emerging from development, in order to

14. Ibid.

15. Medaris Daily Journal, 29 May 1959, MP/FIT. On the 1944 conversion, see Michael J. Neufeld, *The Rocket and the Reich* (New York: Free Press, 1995), 240–44.

16. Hjornevik to Glennan, "Utilization of ABMA," 20 January 1959, memo, copy in file 12054, HRC, NASA History Office; Medaris, *Countdown*, 264.

quickly catch up with the Soviets. At about the time of the first NASA battle, in October, the two organizations settled on the fastest solution, clustering eight motors derived from the Jupiter-Thor engine, and nine tanks derived from the Redstone and Jupiter missiles. On top of this booster of 1.5 million pounds thrust, which would later be called Saturn I, would come upper stages, possibly including a second stage based on the Air Force Titan ICBM. But relations between Huntsville and General Schriever's Air Force Ballistic Missile Division in Los Angeles remained as tense as ever, with the latter obstructing ABMA access to the Titan contractor, Martin, in June and July 1959. Moreover, Saturn did not have a clear mission, and the Air Force resisted ABMA and ARPA's desire to make it the launch vehicle for the Air Force's manned military space-plane project, the X-20 Dyna-Soar (for Dynamic Soaring). Schriever's command proposed an upgraded "Titan C" instead.[17]

Into this contentious situation came nuclear physicist Herbert F. York, who had spent a year at ARPA on his way to becoming the first Director of Defense Research and Engineering in late 1958. The Department of Defense Reorganization Act of that year was another Eisenhower administration attempt to gain control over the fractious services, by creating joint commands and increasing the power of the Office of the Secretary of Defense, notably in the area of Research and Development (R&D). Agreeing with critics who thought that the Army was becoming too distracted from its core combat mission, ground warfare, York set out to rationalize the military space program by pushing Saturn, followed by most of the ABMA, into NASA, leaving the Air Force with the dominant position in military space applications. But he must have felt that he had to proceed in a rather Machiavellian fashion, because what he appeared to do was to try to cancel the superbooster altogether.[18]

For Huntsville, the first sign of a new crisis came on Saturday, 8 August 1959, when the Secretary of the Army called General Medaris at home and told him of suspicious "goings on" regarding ARPA, NASA, and Dyna-Soar. On Monday it became clear that what Brucker was referring to was a requirement by ARPA to justify the increasing costs of Saturn, combined with NASA questions about whether it was going to be charged

17. Medaris to Roy Johnson (Director, ARPA), 23 June 1959, file 9.a.1, Box 35, Series 4, Marshall Space Flight Center Upper Level Management Files, National Archives SE Region, East Point, Georgia; Spires, *Beyond Horizons,* 75–76; Medaris, "*EYES ONLY*" memo to Brucker, 10 August 1959, Personal and Confidential Correspondence 1959, MP/FIT; Medaris, "JUPITER STORY (Personalized History of JUPITER Furnished by General Medaris to Secretary Brucker)," December 1959, file 870–53, page V-12, U.S. Army Aviation and Missile Command (AMCOM) Historian's Office, Huntsville, Alabama.

18. Armacost, *Politics,* 234–37; Herbert F. York, *Making Weapons, Talking Peace* (New York: Basic Books, 1987), 166–74.

too much overhead if other ABMA programs were cut back. That day Medaris wrote a long, secret "Eyes Only" memo for Brucker about all of these matters, including the troubles of the Army Signal Corps' communications satellite project, which was being used to justify the Saturn booster. He added: "I have quite reliable undercover information that the Air Force has prepared a powerful document intended to claim for the Air Force all—repeat all—aero-space missions as being within the fundamental mission assignment of the Air Force. It appears that this document might become the pivotal point around which the outcome of the whole matter might revolve."[19]

What Medaris was referring to was the second strand of the summer 1959 crisis: how military space programs were to be reorganized. ARPA's contracting of various programs to the services produced much dissatisfaction. None of the problems of interservice rivalry and program duplication had been solved, so in April 1959 the formidable Chief of Naval Operations, Admiral Arleigh A. Burke, proposed the creation of a joint space command. The Army leadership seconded this, seeing such a command as the best possibility for fending off Air Force domination. The USAF responded by claiming the unity of aerospace missions and vehicles, and asserting that the complexity and problems of a joint command could be avoided by giving the Air Force control over military space launches and satellites. Unbeknownst to Medaris, on 24 July a divided Joint Chiefs of Staff (JCS) had approved a memorandum close to the Air Force's position—Air Force Chief of Staff General Thomas D. White must have been supported by the JCS Chairman, Nathan F. Twining, also an Air Force general, over the objections of the Army and Navy chiefs. Herb York also was behind this reassignment. If the Secretary of Defense, Neil McElroy, implemented the JCS recommendation, the net result would be that the Air Force would gain sole control over all military space launches and the reconnaissance and early-warning missions, the Army would be left with only its communication satellite, and the Navy with the navigation satellite. ARPA would be reduced to handling research and development, ending its role as the military space agency.[20]

Glennan was kept fully apprised of these maneuvers by York, but the Administrator told his vacationing deputy, Dryden, that he intended to stick to the posture that any resulting bid to transfer the von Braun

19. Medaris Daily Journal, 8 and 10 August 1959, and Medaris, "*EYES ONLY*" memo to Brucker, 10 August 1959, Personal and Confidential Correspondence 1959, MP/FIT.

20. Dwayne Day in Logsdon, *Exploring,* 2:254–55, and Burke memo, April 1959, in ibid., 298–303; Spires, *Beyond Horizons,* 76–77; Spires in Hall and Neufeld, *The U.S. Air Force in Space,* 40–41; Deputy Secretary of Defense to the service secretaries, 23 September 1959, transmitting Defense Secretary's memo to the Joint Chiefs of Staff, 18 September 1959, file "Satellite Info. 1958–60," AMCOM Historian's Office.

group to NASA did not come from them. Nonetheless, he authorized a new, closely held study of the Huntsville question, which one of his top assistants completed within a week. Its substantive conclusions were much the same as those arrived at in 1958, based on the Eisenhower administration's moderate plan for a NASA budget rising to about one billion dollars a year: the space agency could afford only about half of ABMA Development Operations Division.[21]

On 29 August, Medaris heard from the Secretary of the Army's office that York was about to try to cancel Saturn in favor of Titan C, which was supposed to be less capable but a lot cheaper. Two days later, Secretary Brucker sent Medaris a long series of questions to be answered immediately, the gist of which was, what would happen to ABMA and to national space launching capability, if Saturn was cancelled? The answer to the former was pretty clear: ABMA would be devastated. Within two years three-quarters of the staff would have to be laid off, and the von Braun team would probably break up. On that same day, Medaris also received the text of the JCS memorandum to the Defense Secretary. The only hope left was that McElroy would overrule the Joint Chiefs' memo and go with Admiral Burke's original proposal for a unified command. If that did not happen, one way or another, ABMA had little chance of survival—either it would be gutted by the cancellation of Saturn, or it would be transferred out of the Army, or possibly even both. During an emergency Sunday meeting in Huntsville that included some subordinate officers and some leading engineers (von Braun was in Europe), "[s]everal of our people felt that we should ally ourselves with Dr. Glennan[,] who had the real valid requirement for SATURN."[22] Clearly the prospect of joining NASA no longer seemed so bad under the circumstances. But when Administrator Glennan arrived at ABMA for a meeting on 3 September, he kept to his previous promises, and to the cautious policy outlined in NASA's internal study. According to Medaris's memo to Brucker, Glennan stated that "NASA alone cannot . . . support" all of ABMA, and had the budget for only twenty-five hundred man-years—about half. He definitely wanted Saturn, but "believes that the necessary situation could be achieved by ABMA becoming a Department of Defense agency,

21. Glennan to Dryden, 14 August 1959, in "1959—Memos," Box 3.11, Dryden Papers (MS 147), Milton S. Eisenhower Library Special Collections, Johns Hopkins University, Baltimore, Md.; NASA "eyes only" memo "Conditions Preparatory to Establishing a NASA Position on ABMA," 20 August 1959, in "NASA-Army Transfer Plan," Box 15, Series 13, MSFC/ULMF, RG 255, National Archives SE Region.

22. Col. Kaiser, "Notes for General Barclay and Col Paul," 1 September 1959 (quote), and Col. Zierdt cable to Chief of Ordnance, 31 August 1959, both in file "Satellite Info. 1958–60," AMCOM Historian's Office; Medaris Daily Journal, 31 August 1959, MP/FIT.

either singly or within the framework of a joint command." His behavior bears out the fact that he had been badly burned by the 1958 battle.[23]

NASA's support for Saturn helped, as did Cold War arguments about the need to catch up with the U.S.S.R.'s big lead in boosters. The Soviets obliged on 12 September by launching the probe *Luna II,* which became the first object to hit the moon—or any heavenly body—less than two days later. Under the circumstances, it was hard to defend York's proposal to cancel Saturn, with its likely effects on von Braun's group, and indeed he probably understood that. Documentary evidence does support his later contention that it was all a complicated bureaucratic maneuver to get Saturn off the Defense budget and onto NASA's. On 14 September, von Braun was in Washington to make Saturn presentations to a special committee on large launch vehicles convened by York, but already that morning Medaris had told Brucker by telephone that Saturn was safe, partly as a result of the Soviets. Attention had to shift to stopping the directive giving the Air Force dominance of military space missions. Brucker, however, was pessimistic, and von Braun was already discussing the necessity of jumping ship, to the annoyance of Brucker, who called Medaris again later that morning and told him that von Braun "had said . . . [that] he would go with whoever had the money." Brucker questioned von Braun's loyalty to the Army; Medaris defended him, but asserted that: "Dr. von Braun has said if this whole business did go to the Air Force, this would be the best solution—for them to go too."[24] On the other hand, the German-American rocketeer told York that "All I really want is a rich uncle"—an expression that he had used in the press as early as January 1959.[25] If we take von Braun's assertion to Medaris as the more candid expression of his feeling, because there was no reason for him to play politics with the general about the choice, he still had a lot of doubts about NASA—at the very least its willingness to pay for his whole shop.

Late on Friday, 18 September, all the issues came to a head. Medaris's ABMA chief, General Barclay, called him from Washington and told him that Saturn was safe, but Herbert York and Richard E. Horner, the NASA Associate Administrator on the review committee, simultaneously proposed that ABMA be transferred to NASA. Barclay continued: "the ABMA thing caught everybody flatfooted. Secretary Brucker was so discouraged he said he might not fight any more." Moreover, the Defense

23. Medaris to Brucker, re: "Discussion with Dr. Keith T. [*sic*] Glennan," 3 September 1959, Personal and Confidential Correspondence 1959, MP/FIT.

24. Medaris Daily Journal, 14 September 1959, MP/FIT. For Saturn and the York committee, see Sloop, *Liquid Hydrogen,* 227–29.

25. York, *Making Weapons,* 175; "Can Use $50 Million More: Rocket Expert," New York *News,* 21 January 1959.

Secretary "is about to sign, or already had [signed], the mission letter," that is, the directive giving the Air Force the dominant position in military space. Indeed, McElroy had signed the directive that day, just before leaving for a long trip to the Far East. Medaris, after spending the day with Lieutenant General John H. Hinrichs, Chief of the Ordnance Corps, called Brucker: "[Hinrichs and I] have come to the conclusion that it might be wise to give consideration to reversing our position with respect to NASA, that of the two [Air Force or NASA] we might be better off [with NASA]." In the highly restricted teletype to Brucker that followed, Medaris foresaw problems and delays with Army tactical missile programs left stranded if ABMA was transferred to the Air Force, but above all, "from the practical standpoint common use of a single military installation [Redstone Arsenal in Huntsville] by two military services introduces immense complications in such areas as post support, military housing, engineer maintenance and construction, allocations of geographic boundaries, military justice, etc." Medaris's statement was a powerful, if unintentional, commentary on the degree to which the services had become separate fiefdoms—and this with a service that had departed the Army only twelve years previously. "On the other hand," Medaris continued, "joint occupancy . . . with a civilian agency such as NASA has numerous precedents and involves no such degree of complication." NASA was interested in funding Saturn, whereas the program might be delayed if the Air Force took over the core of ABMA. "We are also increasingly fearful of the final outcome of transfer to the Air Force in terms of possible future drying up of this resource [the von Braun team] and resulting disbandment." And he added, in the most unguarded expression of interservice rivalry in the communiqué, "We also remember the fable of the camel who was allowed to stick his head under the tent"—presumably meaning that the Air Force could grab even more Army facilities and missions at Huntsville or elsewhere.[26]

In earlier years, General Schriever had been opposed to using or acquiring the von Braun group, but now he and the USAF leadership decided that they did want it, in part because of political problems, but also perhaps in part because they resented NASA's growing role in areas of spaceflight they considered rightly the Air Force's. During the York launcher committee meetings, the Air Force Assistant Secretary for Research and Development, Joseph V. Charyk, approached von Braun. As Medaris described it in a 21 September "EYES ONLY" message for

26. Medaris to Brucker, 18 September 1959, Personal and Confidential Correspondence 1959, and Medaris Daily Journal, 18 September 1959, MP/FIT; Deputy Secretary of Defense to the service secretaries, 23 September 1959, transmitting Defense Secretary's memo to the JCS, 18 September 1959, file "Satellite Info. 1958–60," AMCOM Historian's Office.

General Hinrichs, "Charyk told him that the Air Force would welcome ABMA. He said Schriever wanted the team and that the Air Force was in urgent need of creating a substitute for STL." STL was the Space Technologies Laboratories, a division of the Thompson-Ramo-Wooldridge (TRW) corporation and systems manager for Schriever's ICBM and space programs. The Air Force was getting considerable criticism at this time from contractors and members of Congress about STL's privileged relationship with the Air Force even though it was a private contractor. Charyk told von Braun further: "That the idea was that ABMA would be assigned the entire space field as the primary technical authority of the Air Force," while STL would remain with missiles. According to Medaris, "Charyk went on to say however that there was a considerable difference between the Defense Department and NASA as to which should have the responsibility for big boosters. He said this difference would be answered in the [National Aeronautics and] Space Council. . . . NASA was making a strong pitch for the booster responsibility."[27]

When von Braun asked Charyk about the opinion of Richard Horner of NASA, the last holder of Charyk's Air Force research and development job, von Braun found himself meeting Horner and Glennan at Glennan's apartment to hear NASA's side. Medaris continues: "Wernher says he brought up the budget necessary for NASA to support big booster development. Glennan answered that he was sure that the money would go with this assignment, that NASA expected to present the matter to the Space Council for decision . . . , that he was reluctant to deal with any single service for his hardware and felt that the situation would be much better resolved with the assignment in NASA hands." In the end, von Braun used a variant of his jocular but truthful line on Glennan: "Look, all we want is a very rich and very benevolent uncle"—to which the Administrator's later comment was: "What a personality!" But Medaris thought that "Wernher was obviously most uncomfortable about the whole situation and attempted to make it clear that he had gotten sucked into these conversations just by 'trying to be polite.' He . . . did not want to operate in that field and hoped to stay away from the whole business until some decision was reached." The Army missile chief in turn told his star engineer that they would have to wait, but if "the decision went to NASA . . . for the big booster, the invitation to join up with NASA

27. Medaris *"EYES ONLY"* memo to Hinrichs or Schomburg, 21 September 1959, Personal and Confidential Correspondence 1959, MP/FIT; for Schriever's earlier opposition, see Schriever to Power, 30 March 1955, "SUBJECT: Redstone - Scientific Satellite," in frames 407–8, microfilm roll 3524, Schriever Papers, Air Force History Support Office, Bolling AFB, D.C., courtesy of Jacob Neufeld, and J. Neufeld, *Development of Ballistic Missiles,* 115n, 144–46. On USAF resentment of NASA, see McDougall, *Heavens,* 195–200.

would then be open as representing the logical method for carrying out the situation."[28]

For Glennan to have promised that he would have the budget to support Saturn and ABMA, he must have received considerable encouragement from Herbert York or others, because his statements to von Braun were considerably stronger than those he had made in Huntsville only two weeks previously. But the game was not quite over. The Air Force formalized its pitch on 29 September, when Vice Chief of Staff Curtis E. LeMay sent the Secretary of the Air Force a memorandum asking that, as a logical consequence of the Secretary of Defense's 18 September directive giving the air service all responsibility for military space boosters, ABMA be assigned to the Air Force. The Huntsville agency "would add significantly to the Air Force in-house capability for the development of space systems, and would provide a supplement or alternative" to STL. Moreover, it "could provide depot support for ballistic missiles and might also serve as a substitute for the Hastings Depot scheduled for MINUTEMAN [solid-fuel ICBM] assembly." But LeMay's request was vague about how ABMA would be changed in order to make it compatible with "Air Force needs and methods of operation"—which were notably hostile to large in-house development and manufacturing operations like those in Huntsville. He also hoped that a major portion of the funds to support it would come from contracts to NASA and ARPA, this at a time when the latter agency was about to lose 80 percent of its budget after being eliminated as the middleman in military space projects.[29]

A few days previously, after weeks of behind-the-scenes classified deliberations and machinations, the struggle over ABMA had finally burst into public view when the Defense Department handed out a press release summarizing McElroy's reassignment of military space responsibilities (the actual memo was secret). It became obvious to the press that ABMA's days were numbered, but Medaris told his staff that "we must not permit this to 'flush' us out"—meaning it was politically unwise to admit defeat or state a preference.[30] Right up to the final public announcement on 21 October, the press presented the matter as a battle to be decided by the President. But the cards were already stacked in favor of NASA because of York's preference. Moreover, presidential science adviser George B. Kistiakowsky and even Eisenhower himself had supported the

28. Medaris "*EYES ONLY*" memo to Hinrichs or Schomburg, 21 September 1959, Personal and Confidential Correspondence 1959, MP/FIT; Hunley, *Birth of NASA*, 23.

29. LeMay to Secretary of the Air Force, 29 September 1959, USAF Space and Missile Center Archive, Los Angeles Air Force Base, California, courtesy of David Spires, University of Colorado at Boulder; Spires in Hall and Neufeld, *U.S. Air Force*, 41.

30. Medaris Daily Journal, 23 September 1959, MP/FIT.

idea of transferring ABMA to NASA in fall 1958. A top-level meeting was called on 7 October 1959 that included York, Kistiakowsky, Glennan, and General Andrew J. Goodpaster, Eisenhower's close adviser, to discuss a draft directive to carry out the transfer of the Development Operations Division—von Braun's group—to the civilian space agency. Six days later the Armed Forces Policy Council—encompassing the service secretaries and Joint Chiefs—met and came to no decision, but according to Medaris's daily journal, "The Air Force said they couldn't afford ABMA." Apparently support in the USAF was already weakening. Finally, on the twenty-first, the President authorized a press release approving the transfer. After a year of on-again, off-again struggles, Glennan got what he wanted, and more than he originally thought he could afford: all of von Braun's division, instead of half.[31]

Von Braun himself may have remained dubious about NASA until the last minute. In a 4 October letter to his parents, he presented himself as happy that Saturn was safe, but he also wrote that his group was "in the position of a beautiful young girl who has two suitors, and must be on alert that she marries honorably, and is not dishonorably led astray." Richard Horner later said that he and Glennan had to meet von Braun in a "Washington hotel room" the night before the 21 October announcement to overcome the German American's still-considerable misgivings about the plan.[32] It is possible that Horner was misremembering the meeting in Glennan's apartment a month earlier, but it is also possible that von Braun, with his history of skepticism about NASA, could not quite believe that the money would actually be there to support Saturn and his operation, or did not like the separation of his division, which formed most of ABMA, from the administrative and support elements. Indeed, it took months of careful planning so that Development Operations Division could operate independently from the rump of

31. Glennan to Dryden et al., 7 October 1959, with draft proposal of 6 October 1959, and Glennan press statement, 21 October 1959, copies in file 12051, HRC, NASA History Office; Medaris Daily Journal, 14 and 21 October 1959, MP/FIT; Glennan and Gates, Memorandum for the President, 21 October 1959, copy in file 12054, HRC, NASA History Office; "Battle on to Control New Rocket," 2 October 1959, *New York Herald Tribune*; "Ike Calls His Top Aides in Space-Missile Crisis," 21 October 1959, *Washington Daily News*; "Eisenhower Acts to Strip the Army of Its Space Role," 22 October 1959, *New York Times*. An interesting sidelight on the bitterness of the Army–Air Force feud is that afterward Army Secretary Brucker was willing to give NASA only a ninety-nine-year lease on part of Redstone Arsenal, with the provision that if NASA was taken over by the Air Force, as many expected, the land would revert to the Army: Neufeld phone interviews with Paul Dembling, former Chief Counsel of NASA, 28–29 July 2004.

32. Von Braun to parents, 4 October 1959, NL 1085, Nr. 85, Bundesarchiv Koblenz; Sloop, *Liquid Hydrogen*, 229, 305, based on an interview with Richard Horner, 13 March 1974.

ABMA, which continued to exist for two years until folded into a unified Army Missile Command. The remaining development for the Redstone, Jupiter, and Pershing systems was handled by what was left of ABMA and a temporary military division of the NASA center. Finally, on 1 July 1960, after a three-month delay, the George C. Marshall Space Flight Center in Huntsville, Alabama, officially came into existence, with Wernher von Braun as its Director. In the meantime, his skepticism had rapidly converted into enthusiasm, as the NASA leadership embraced Saturn and the Huntsville center, now that it was theirs. Von Braun was on his way to the moon.

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In conclusion, the year-long struggle over the future of the Army Ballistic Missile Agency is a fascinating window onto the complexity and bitterness of the interservice missile and space battles that took place after Sputnik. All too often, the entrenched interests of the services, or of elements of the services, seemed more important to their commanders than the national interest. The Army stubbornly held onto its prestigious ballistic missile and space assets even at the cost of its core mission. The Air Force, meanwhile, saw the Army as an interloper on its turf, outer space, and wanted an aggressive military space program that would also have made NASA and ARPA into minor, dependent agencies. According to Herbert York, the USAF leadership was "positively delighted" that the Army and ARPA role would be eliminated or reduced as a result of the Secretary of Defense's directive in September 1959, even though the air service did not get all it wanted.[33] Only after that directive did Schriever's division depart from its obstructive policy versus ABMA and belatedly decide that it might want von Braun's group—and then largely in the context of the political troubles over STL. As a result, the Air Force may well have missed a chance to absorb it.

Medaris's command, on the other hand, had to fight a defensive battle throughout. In the fall of 1958, the threat was NASA's attempt to take over half of von Braun's division, and Medaris and von Braun used their power in the press and Congress to obstruct it. In the summer and fall of 1959, the USAF was clearly the bigger threat, with its lack of support for Saturn, and long history of heated criticism of the Army's long-range missiles and arsenal system for developing them. After the ground service appeared to fend off York's Machiavellian maneuver to cancel Saturn, a further attempt to hang on to the heart of ABMA began to seem increasingly hopeless. For Medaris, at least, handing it over to NASA

33. York, *Making Weapons*, 175.

became the preferable option to letting the Air Force have it. Von Braun, on the other hand, favored the Air Force unenthusiastically, but he found himself, for once, out of his political depth and unable to affect the outcome of the battle, other than to put his best arguments forward for Saturn. His conversion to NASA was certainly more reluctant than his biographers and camp followers have been willing to admit.

Of course, it is often too easy to equate units of a military service with the whole service, and thus overlook interservice collaboration: Strategic Air Command had a much better relationship with ABMA when tasked with deploying the Jupiter missile. But the end of the first Army space program certainly is a window onto the excesses of interservice rivalry in the late 1950s. It also provides insight into the origins of that rivalry in competing missions, different systems of industrial contracting, and incompatible military organizational structures, which, Medaris asserted, would have made it a logistical nightmare for two services of the United States armed forces to share the same military base. Such was the extent to which the services had become separate fiefdoms while claiming to fight a common enemy.

The Journal of Military History

Vol. 69, No. 3 July 2005

Published quarterly for the Society for Military History by
The George C. Marshall Foundation and The Virginia Military Institute