



## *An Untaken Road: Strategy, Technology, and the Hidden History of America's Mobile ICBMs* by Steven A. Pomeroy.

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*An Untaken Road* investigates the history of mobile intercontinental ballistic missiles (ICBMs) in the United States during the Cold War. The mobile ICBM seemed a viable response to threats posed by military developments in the Soviet Union. But, while technologically achievable, it was aborted because of high costs, bureaucratic resistance, and strong popular opposition.

The United States never deployed mobile ICBMs, making this history a tale of a road not taken. As I walked this road and its alleys, I realized that the decision not to build a technologically feasible weapon was a reasoned attempt by national leaders (and later the public) to direct technological change. At times the reasoning was logical. Other times, it was not. (2)

Author Steven Pomeroy, a twenty-five-year veteran of the US Air Force and a former nuclear launch officer, is fully conversant with the complex technical issues of missile research and development and of national security strategy. His book, a revision of his doctoral dissertation (Auburn Univ. 2006), makes technical engineering concepts comprehensible even to a lay readership—no mean feat. Its helpful illustrations and graphics make it an excellent primer on US Cold War missile development in general.

In focusing on the mobile missile, the author highlights the overarching questions that preoccupied American military and political leaders throughout the superpower rivalry with the Soviets. How might the United States best deter or, if need be, win a nuclear war? Keeping missile development front and center, Pomeroy systematically explains how weapon systems were evaluated, chosen, and deployed (or not) over some four decades. In the process, he gives due attention to fascinating personalities in key policy roles. He builds on models created by other historians of military innovation<sup>1</sup> to explain the process of weapons development and acquisition:

This book also revises Hughes' developmental phases from five to four: (1) invention and development, (2) transfer and diffusion, (3) bureaucratic security, and (4) stability. My model considers momentum a force that bridges all phases. In addition, phase three now reads "bureaucratic security." A technology that achieves this has generated sufficient momentum to secure its bureaucratic existence. Other combat arms may threaten it, but the newcomer has reached adulthood and can defend itself. As the years pass and sustaining innovations occur, it becomes a stable member of the "old guard" (phase four). (23)

There follows a richly detailed discussion of missile programs from the Atlas and Titan ICBMs to the second-generation Minuteman rockets that became the centerpiece of the American land-based strategic deterrent. The silo-based Minuteman and its variants provided the requisite firepower, responsiveness, and survivability at a cost acceptable to Pentagon planners. Even when the late 1970s

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1. E.g., Thomas P. Hughes, *Human-Built World: How to Think about Technology and Culture*, 2nd ed. (Chicago: U Chicago Pr, 2004). Stephen P. Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca: Cornell U Pr, 1991), and Williamson Murray, *War, Strategy, and Military Effectiveness* (NY: Cambridge U Pr, 2011).

Soviet buildup necessitated new heavy missiles like the MX and Peacekeeper, they were deployed in silos, not in any “more survivable” mobile bases.

When the US Navy Polaris submarine-launched ballistic missile (SLBM) program ensured reliable second strike capability, all plans for a mobile land-based missile system were dropped. No affordable mobile-missile concept could compete with Polaris and the Air Force would not sacrifice its silo-based deterrent force for a costly new system.

Pomeroy elucidates such concepts as the early “Mobile Minuteman” (deployed on railroad cars), aircraft carrier-launched ballistic missiles, the Multiple Protective Shelter system, and “race track” basing plans for the MX missile. He also discusses such “paths not taken” as the early Air Force programs based on long-range cruise-missile technology. In each case, he recounts the discussions and debates surrounding any given program’s potential contributions to US national security and the efforts of military and political leaders and bureaucratic organizations to exploit technology in meeting strategic challenges.

Throughout, Pomeroy describes the men behind the development of ICBMs and America’s strategic deterrent. Brig. Gen. Bernard Schriever, for example, was assigned to manage a crash ICBM project under President Dwight Eisenhower’s “New Look” program; he played a leading role in every major missile program through the Minuteman. Pomeroy also discusses the levels of governmental and political support for weapons innovation. The Eisenhower administration saw the ICBM as a critical national security objective and provided material, human, and financial resources to reach it. Later planners and developers did not enjoy such backing. Moreover, the challenges presented by the Soviet Union and prevailing technologies changed over time.

The book well captures the nature of interservice rivalries—particularly Air Force vs. Navy—and identifies the discrete policy priorities of different administrations and the military leaders charged with carrying them out. For example, the arms control commitments and verification procedures agreed to in the Strategic Arms Limitation Talks (SALT) greatly complicated the design, basing, and funding of a planned mobile missile system in the late 1970s. The author’s clear-eyed treatment of such matters is a great strength of his book.

In some instances, however, Pomeroy veers into partisan political commentary. In particular, he devotes considerable space to the perceived failings and limitations of civilians in the Defense Department under Robert McNamara, especially the overly-analytical John F. Kennedy administration “whiz kids.” Such critiques are certainly nothing new, but Pomeroy implies that their personality clashes with uniformed military leaders (whom he identifies with) undermined US strategic thinking and nuclear policy in the period. In addition, the discussion of McNamara’s views on counterforce targeting is not very illuminating, nor is it made clear what the military leadership would have preferred. One constant was the notion that a cap on Minuteman levels could enable the Soviets to surpass US nuclear deterrent forces. This was reflected in McNamara’s shift toward “assured destruction” capabilities and proves that “nuclear strategy” was then still very much a work in progress. Rather than taking sides in the argument, Pomeroy should simply have used the evidence of disagreements to stress the intricacies of the challenges confronting policy-makers.

A second defect in this book on military and technological innovation is the downplaying of the introduction of Multiple Independently Targetable Reentry Vehicle (MIRV) technology in the late 1960s, a decisive breakthrough (“killer application”) in the view of both military and political leaders at the time. The knowledge that the United States would deploy MIRVs bolstered McNamara’s confidence that production of Minuteman III (with MIRV) could be capped yet prove sufficient in most scenarios. Failure to address MIRV in the SALT negotiations and the eventual Soviet deployment of

heavy MIRVs created planning problems in the late 1970s. Oddly, Pomeroy's coverage of the period mostly ignores the perceived impact of MIRVs.

Despite these criticisms, *An Untaken Road* delivers an intelligent and timely analysis of the major strategic debates of the Cold War. In an era of shrinking Pentagon budgets, Steven Pomeroy's compelling new study should be required reading for defense experts and decision-makers grappling with the political and military implications of modernization in the "second nuclear age."