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The Vietnam War seems destined to continue making its effect felt on our times, more than thirty years after its end. Nor is this restricted to the postulated "Vietnam Syndrome" that appears to haunt the present conflict in Mesopotamia. Its legacy can be found just as much in subsequent doctrinal pronouncements (the "Powell doctrine") and deployments of combat systems. It is to the history of the latter that Seymour J. Deitchman has contributed a valuable article on "The 'Electronic Battlefield' in the Vietnam War."

Drawing on his expertise and personal experience as an insider on the project, Deitchman revisits the design and implementation of the system of networked sensors and attack weapons that was deployed in Indochina to disrupt the southwards supply line of the North Vietnamese People's Army of Vietnam (PAVN) most commonly referred to as the Ho Chi Minh Trail. From 1966 onwards, scientists were recruited to conceive a "total network design" that would combine:

sensors [be they acoustic, seismic, radio-frequency, infrared or magnetic] distributed along the Ho Chi Minh Trail; aircraft that acquired and retransmitted the sensor signals the PAVN generated by their passage; communication links to the signal processing and target designation headquarters in Nakhon Phanom, Thailand; subsequent attack orders to combat aircraft having the mission of attacking the traffic on the trails; and the aircraft themselves with their weapons (876).

By 1971 the so-called "McNamara Line" (a term rejected as misleading and pejorative by Deitchman) had cost the Department of Defense close to \$1.7 billion with mixed results. Nonetheless the project was praised in subcommittee hearings, and its technological

promise hailed by Senator Barry Goldwater as possibly “one of the greatest steps forward in warfare since gunpowder” (885-6). Indeed, Deitchman is keen to connect the system’s design to more recent developments in the United States (U.S.) military, and in particular the new Pentagon doctrine of Network-Centric Warfare, in the final (and somewhat too brief) pages of the article.

Deitchman provides valuable detail into the design and implementation of the interdiction system as well as helpful correctives to some of the misapprehensions that have circulated in previous publications (such as the fact that the term “Igloo White” referred to only the truck interdiction part rather than to the entire system). One can hardly contest the extent of his knowledge in the matter and historians will welcome this concise contribution to the facts surrounding this episode of the Vietnam War. Where I will more directly engage the article however is on the issues of the “success” of the system and of its legacy for present military affairs.

There is no doubting the significance of the “McNamara Line” as a major implementation of scientific concepts to the practice of war. As I have argued elsewhere, it can be placed within a broader movement that saw principles and practices derived from the science of cybernetics diffused through the American military during the Cold War.¹ The system linking sensors, information processors, and weapons via communication links described by Deitchman bears a striking resemblance to the servomechanisms described by cyberneticists (a servomechanism is any system that uses continuous information feedback from its environment in order to maintain or attain a desired state – thermostats, automatic gun controls and self-guided missiles are all such systems). In this sense, the system deployed in Vietnam is part of a longer genealogy with the development between 1958 and 1963 of SAGE, the first computer-based command and control system for the purpose of providing a centralised air defense network, marking an important a milestone.²

The promise of unprecedented awareness of the battlefield and control over it through the deployment of the latest information-enabled technologies has certainly been an alluring one and recurrently invoked by the heralds of imminent military revolution. General William Westmoreland, Commander-in-Chief of U.S. forces in Vietnam, offered such a vision in 1969:

On the battlefield of the future, enemy forces will be located, tracked, and targeted almost instantaneously through the use of data links, computer assisted

¹ Antoine Bousquet, “Cyberneticizing the American War Machine: Science and Computers in the Cold War” *Cold War History* Vol.8, No.1 (January 2008). See also Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (Columbia University Press & Hurst, 2009) for an expanded consideration of the issue and the broader argument regarding the relationship of science and war.

² Paul Edwards has written persuasively on the SAGE project and the broader computerisation of the military in the Cold War. Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge, MA: MIT Press, 1996).

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intelligence evaluation, and automated fire control. With first round kill probabilities approaching certainty, and with surveillance devices that can continually track the enemy, the need for large forces to fix the opponent becomes less important. I see battlefields that are under 24-hour real or near-real time surveillance of all types. I see battlefields on which we can destroy anything we can locate through instant communications and almost instantaneous application of highly lethal firepower... With cooperative effort, no more than 10 years should separate us from the automated battlefield.³

Such prophecies have been recurrent ever since with assurances that the latest round of technological developments will finally deliver the automated battlefield. This was the spirit of President Reagan's "Strategic Defensive Initiative" and of the various "Revolutions in Military Affairs" that have been proclaimed since the late eighties, of which Network-Centric Warfare is only the latest incarnation. Yet the performance of all these systems has consistently fallen short of the promises made for them. Forty years after Westmoreland's speech, the United States has rediscovered that its high-tech army can be frustrated by opponents with far inferior equipment but with resourceful guerrilla tactics.

This has not prevented extravagant, if short-lived, claims about the results yielded by such systems. The Seventh Air Force in Saigon, responsible for air strikes on the Ho Chi Minh Trail, trumpeted the destruction of no less than 6,000 trucks during the 1968-69 dry season, followed by 10,000 in 1969-70 and 20,000 in 1970-71. Such figures did not persuade everyone, however, with the Senate Foreign Relations Subcommittee on US Security and Commitments Abroad observing in an April 1971 commentary that "the truck kills claimed by the Air Force as the total figure for the last year greatly exceeds the number of trucks believed by the embassy to be in all of North Vietnam."⁴ Whatever the true numbers of trucks interdicted, it certainly didn't prevent the PAVN conducting major tank and artillery operations in South Vietnam in 1972.

Anyone tempted to attribute these failings to technological immaturity or the unique dysfunctions of the Vietnam War should consider the similar tale told by the 1999 NATO bombing of Yugoslavia, also initially presented as a spectacular demonstration of precision weaponry and surveillance technologies. When the smoke had cleared, an Air Force investigation revealed that only 14 tanks had been destroyed (out of 120 initially "confirmed" strikes), along with 8 armoured personnel carriers (as opposed to 220) and 20 artillery pieces (out of the previously claimed 450).⁵

³ William Westmoreland, address to the Association of the US Army, 14 Oct. 1969. See Paul Dickson, *The Electronic Battlefield* (Bloomington, IN: Indiana University Press, 1976), 215-23.

⁴ Edwards, *Closed World*, 3-4.

⁵ John Barry and Evan Thomas, "The Kosovo Cover-Up", *Newsweek*, May 15, 2000.

Deitchman is certainly cautious in attributing anything more than a qualified and limited success for the Vietnam interdiction system, in particular that of Igloo White. However he seems to assign any failings in achieving its designated mission to an incomplete application of the system's principles rather than anything inherent with its design or assumptions about the conduct of war. I would contend that any attempts to design an automated battlefield on the basis of computerised systems responding to pre-established sensor signals are gravely flawed in neglecting the profound and irreducible ambiguity of information in war.

Clausewitz famously observed that “a great part of the information obtained in war is contradictory, a still greater part is false, and by far the greatest part is of doubtful character.” Crucially this uncertainty does not primarily derive from the lack of available means for collecting information (which would otherwise be liable to being eventually resolved by some technology or other) but from the fundamental nature of armed conflict. Indeed, war pits two opposing wills attempting to impose oneself on the other and responding to any tactical or operational superiority of the adversary by seeking the means to negate it. This may entail shifting the battlefield to more advantageous terrain, adopting new tactics, or practicing all forms of deception that may abuse or lead into error the enemy – above all avoiding remaining predictable. Thus the North Vietnamese became adept at fooling sensors and deliberately triggering them, just as the Serbs camouflaged vehicles and planted decoys to draw NATO bombers, thereby creating many of the false positives registered in these respective conflicts. In both cases, instead of acquiring combat dominance through superior information, the U.S. military was misled into thinking it was performing far better than it was and risked becoming entirely predictable to its opponents. And as long as it persists in wanting to substitute a technological quick-fix for tactical flexibility, it will remain vulnerable to being defeated by resourceful adversaries.

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— Commissioned for H-Diplo by Edwin Martini, Western Michigan University