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Technological Change and the Future of Warfare,

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developed today is certainly not optimal, would Cambone's system be better?

Despite his failure to consider the second and third-order effects of enacting the system he proposes, Cambone provides the basis for a great academic discussion over future national security policy and how it is developed. It is a topic that needs to be discussed, and as the author has emphatically pointed out, the time is now. This point is hard to refute. As the world's sole remaining superpower, and as the debate and divergence over how policy gets developed becomes stronger, the United States must reflect on how to improve its national security decision making structure.

In sum, Cambone and his colleagues have provided a good point of departure for a debate on how the United States should develop and implement future national security policy. There are many things to consider, and this book will get us started.

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O'Hanlon, Michael. *Technological Change and the Future of Warfare*. Washington, D.C.: Brookings Institution Press, 2000. 208pp. \$42.95

Over the past several years, the U.S. military has officially embraced the idea that rapidly evolving technologies soon will lead to a profound change in the conduct of warfare. The need to innovate in response to a prospective revolution in military affairs is the central theme of *Joint Vision 2010* and similar force-planning documents. Some studies, such as the congressionally mandated National Defense Panel, have concluded that only immediate and

radical transformation to new systems, new operational concepts, and new organizations will enable the U.S. military to retain its battlefield dominance.

Michael O'Hanlon, however, is not convinced. In his view, most calls for transformation lack any systematic or rigorous analysis of how emerging technologies might specifically change the character of combat in the coming decades. Thus the goal of this book is to provide realistic projections of technological possibilities that offer a better idea of how the U.S. military might best proceed in future research and acquisition.

O'Hanlon examines a wide range of militarily relevant technologies, in two broad categories: those primarily electronic (sensors, computers, and communications), and those primarily mechanical (vehicles, ships, aircraft, and weapons). From this survey he offers an evaluation of where evolving technologies are likely to provide new capabilities over the next two decades, and where significant force limitations are likely to remain.

In the realm of electronics, O'Hanlon expects continued advances in computers and communications but foresees no imminent breakthrough in sensors that will significantly improve one's ability to detect and track the adversary's activity. He specifically rejects the idea that the battlefield can be rendered "transparent." On the mechanical side, he sees no near-term developments that will allow maneuver and strike forces to become sufficiently light, fast, fuel efficient, or stealthy to allow profound improvements in speed of movement or lethality. Thus he concludes that proponents of transformation provide neither a compelling case for a near-term revolution in warfare nor any adequate idea of what the military should be transforming itself into.

O'Hanlon's general projections of future technologies appear reasonable. Yet the reader would be more assured of the author's conclusions if his technical evaluations did not rely so heavily upon articles in newspapers and popular periodicals. One can be justifiably skeptical that information drawn from *Army Times*, *Defense News*, or even *Aviation Week & Space Technology* fully reflects the broad range of scientific research and development throughout government, industry, and academia, both in the United States and abroad. Likewise, O'Hanlon's general dismissal of the future military challenges posed by China, Russia, and North Korea is somewhat cavalier. It would have been useful had O'Hanlon made clear his personal qualifications to provide an authoritative evaluation of such a wide range of technology projections and foreign military developments. He states that he presented his findings to "a number of weapons scientists and technology experts," but he does not identify them or indicate whether they agreed with his conclusions.

O'Hanlon uses his projections of future technology as the basis for a modernization strategy that is intended to promote "defense innovation" without increasing the defense budget. He proposes major reductions, up to two-thirds in such "expensive next generation platforms" as the F-22 and F/A-18E/F, in order to fund improvements to existing systems and a broad range of initiatives in research, development, and experimentation. However, most of his recommendations tend to be as vague as the assumptions he is challenging. For instance, O'Hanlon approves of the acquisition of "new fleets of unmanned aerial vehicles," because it "appear[s] generally sensible." He states that up to two billion dollars a year might be needed to outfit combat units with

"internet capabilities" but does not make clear whether he is referring to the commercial Internet, classified information networks, or some other type of equipment-interoperability initiative. Likewise, he makes a broad plea for the military to "avoid service parochialism and foster jointness" but does not elaborate on how best to balance the advantages of organizational unity (as distinguished from systems interoperability) against the important contribution of interservice competition to the process of military innovation.

O'Hanlon's basic thesis is certainly valid. As he points out, the fact that none of the military services has actually committed to major changes in its force structures, operational concepts, or organizations is evidence in itself that proponents of innovation have yet to articulate a compelling argument for a very different U.S. military. This book is far from the final word on military technology and transformation, but it may serve to stimulate the proponents of major change to engage in a more detailed debate.

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Moskos, Charles C., John Allen Williams, and David R. Segal, eds. *The Postmodern Military: Armed Forces after the Cold War*. New York: Oxford Univ. Press, 2000. 286pp. \$45

Ask a soldier or military analyst to describe the "postmodern military," and you are likely to get an answer that includes high technology, precision weapons, information operations, and possibly (especially if he or she is associated with the Navy) network-centric warfare. Much of the recent literature on military affairs