

Foreword

ANDREW W. MARSHALL

Director of Net Assessment, Office of the Secretary of Defense

This is an important and instructive book. Its original historical case studies, and its integrative analyses of those cases and of existing literature, develop a very good picture of the complex processes by which innovative military capabilities—including new technology, knowledge, and skills—diffuse from their originators to the military establishments of other nations. Among the book's many strengths is its grasp of how multidimensional the underlying sources of military capabilities are and, in particular, how important the organizational and cultural sources are. This collection of studies and analyses is especially important because it raises issues that U.S. policy-makers will have to address in developing a strategy to guide our actions in the revolution in military affairs that is currently unfolding.

The current revolution in military affairs (RMA) has been underway since perhaps the late 1960s with the emergence of the first generation of long-range precision strike systems. There is now a large literature about revolutions in military affairs, some of it reviewed in this volume. The only important point that needs to be made here is that the term refers to large, significant changes in warfare. Over the course of the last five centuries there have been a number of these periods of significant change in warfare, each taking place over a period of several decades. What is new is that—because of the work of Western military historians since the 1950s, and the use of this concept of revolutions in military affairs by Soviet military theorists beginning in their 1960's discussion of the impact on warfare of nuclear weapons and ballistic missiles—we are more self-aware about the process than were most previous generations who had this experience.

The reason that large changes in warfare take several decades is that it takes a good deal of time to develop new concepts of operation, to create the new military organizations that are required to execute these new concepts, for new skills to be acquired, and perhaps for new military careers and specialties to be created.

All of these things take time, and in addition, as Stephen P. Rosen's analyses of military innovation several years ago suggested, it may require generational change within the military establishment for the new ideas and new ways of fighting to establish themselves fully.¹ We may well be near the beginning of such a lengthy period of change, which makes this volume so interesting and potentially useful.

Although a number of people were aware in the late 1970s that the Soviet military theorists were beginning to write about a new military revolution that was underway, it was only in the late 1980s that a major assessment focused on the core question: Are the Soviets right? Are we really in another period of major change in warfare? If we are, important strategic management issues face the top-level managers of the Department of Defense. Among these issues are how to foster innovation, and how to change the weapons acquisition process to make field experimentation easier. A strategy would be needed, one part of which would be focused internally on how to make innovation and change easier so that the United States would more likely find the right ways of exploiting what technology would make possible. Another part of such a strategy would be focused externally on obtaining competitive advantages with respect to potential opponents and on the management of relations with allies. It is with respect to this latter, external aspect of a U.S. strategy that this volume is especially valuable. It provides information that may be useful in making judgments about the behavior and capabilities of other countries' militaries and the level of success that may obtain in their efforts to exploit available technologies. In the introductory chapter the editors say: "Our study takes up the question of how others are likely to respond to U.S. innovations and how this will affect America's position. The answer depends on whether and how others assimilate and exploit innovations. Anticipating the diffusion trajectories that are likely to accompany military innovation and transformation, and developing strategic responses, are core aspects of the RMA challenge."²

The volume is also of special value because of its discussion of the issues that surround the treatment of allies in a situation where the United States is ahead—indeed, currently by a large margin—in exploiting the newer technologies for military purposes. This is a matter of importance, but one that poses great difficulties.

As mentioned above, it is a particular strength of this book's various case studies and analyses that they describe and explore the complexities of the process of diffusion and change in military organizations. As the editors note,

¹Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, NY: Cornell University Press, 1991).

²Introduction, p. 2.

“Despite the vital concerns at stake, academics are just beginning to investigate the process of diffusion: how military knowledge, broadly defined to include hardware (e.g., technology) and software (e.g., doctrine, tactics, organizational form, etc.), diffuses throughout the international system, or what factors enhance or inhibit the ability of states to incorporate innovations into their defense structures.”³ This volume goes a long way toward filling that void. Moreover, it observes that how “[a] look at the historical record reveals far more variation in adoption and emulation across states and cultures than conventional international relations theory assumes. The process of diffusion appears far less deterministic and much more vulnerable to local conditions than the systemic view suggests.”⁴ In particular, this book shows that culture and local institutions have a major effect in shaping how military organizations incorporate and adapt to innovations by the militaries of their neighbor or potential opponent.

To repeat, this is an exceptionally valuable collection of case studies and analyses both for interested academics and policy-makers.

³Ibid., p. 7.

⁴Ibid., p. 8.