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Future War: Non-Lethal Weapons in Twenty-first Century Warfare

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Chinese Long March 2C costs twenty-five million dollars), middle tens to low hundreds of millions of dollars for an anti-satellite program may be an attractive price for a capability to attack the small number of high-value U.S. communications satellites in high orbits. A direct-ascent ASAT program might cost less.

Indeed, a country contemplating war with the United States might consider a billion dollars or so to degrade U.S. capability substantially by attacking thirty-five or forty American satellites money well spent. Hard, yes; guaranteed successful, no; but the severity of the outcome might be merely a function of money for an adversary and a serious problem for the United States if satellites move from being force multipliers to force divisors. In an explicit net assessment the issue of U.S. vulnerability and the capability of potential adversaries should be addressed more thoroughly before the wisdom of raining titanium rods from space is considered.

This book is recommended as an introduction to an important and insufficiently understood topic. It is also recommended as an example of net assessment, though, perhaps as intended, it is better at asking significant and useful questions and sensitizing readers to problems than at providing answers.

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Alexander, John B. *Future War: Non-Lethal Weapons in Twenty-first Century Warfare*. New York: St. Martin's Griffin, 1999. 255pp. \$14.95

The purpose of this book is to draw attention to the use of nonlethal weaponry in future warfare scenarios. The subject is

divided into three major sections that, respectively, discuss the rationale behind the use of nonlethal weaponry, provide an introduction to new technologies, and suggest scenarios of tactical and strategic uses. Throughout the book, Alexander focuses the reader's attention on some of the more critical issues of the appropriate use of nonlethal weaponry in the U.S. arsenal and, in so doing, demonstrates that new weaponry is needed to respond adequately to new and emerging types of conflict.

One of Alexander's fundamental assumptions is that "war has always represented the controlled application of force" and that nonlethal weaponry can be part of that controlled application of force consistent with military objectives. The questions are: How will new technologies be used to control the level, type, and effects of the force? How do these new technologies relate to changing military and political objectives? How can nonlethal weaponry best be applied when the objective is to limit force application in a variety of situations? These are not easy questions by any stretch of the imagination, but Alexander has had the temerity to put them forward for public scrutiny.

Alexander is no dilettante; his expertise in this area is recognized by the number of well-known serving military officers who have written short scenario-vignettes printed in the front of the book. Neither should it go unnoticed that Tom Clancy wrote the foreword and General John J. Sheehan wrote the introduction. Notably, Alexander chaired one of the first major conferences on nonlethal weaponry and participated in the landmark study by the Council on Foreign Relations on nonlethal weapons. He has experience as a military commander with the Green Berets in Vietnam, as Dade

County deputy sheriff, and as a consultant for the Los Alamos National Laboratory. This combination of technical expertise and real-world experience regarding the suitability and applicability of nonlethal weaponry has led to a thoughtful study that must be taken seriously.

Alexander's easy writing style belies the difficulty of the subject. The descriptions of techno-gadget weaponry may evoke ideas of science fiction or Nintendo, but they draw attention to the fact that what may not have been technologically possible in the recent past is now commonplace. The reader will be drawn to descriptions of electronic surveillance devices, new types of (and uses for) chemical agents, low-kinetic-impact weapons, acoustic devices, biological agents, and technologies appropriate for information warfare. The effect of these weapons on the human body and their use in conflict are of critical concern to all Americans, whether as "users," potential "targets," or as part of the policy community that writes the rules that enable or restrain the use of nonlethal weapons.

The author's use of fictional worst-case scenarios draws attention to the interface between weaponry, tactics and strategies, and appropriate rules of engagement. At first glance the vignettes seem a bit distracting, but they are admittedly an effective device for quick-pacing a difficult subject. They also tend to make a very sober analysis more palatable.

Military and intelligence experts will criticize the technological information as being "common knowledge." However, *Future War* was not meant to be a handbook for professional practitioners. Its importance lies in drawing public

attention to several dilemmas in U.S. security, both domestic and international. Instructors in professional military education should be discussing with military members not only the technology but the appropriate uses of nonlethal weaponry where military and law enforcement activities tend to overlap. Academicians and others who shape public opinion need to understand and discuss the dilemmas faced by military forces and law enforcement organizations. Finally, policy makers need to know the excruciatingly difficult decisions that must be made in the near future regarding the appropriate types and levels of force to be applied in a wide spectrum of missions.

The appendix alone is worth the price of this book. Alexander provides simple lists and diagrams of nonlethal weapons taxonomies, nonlethal antipersonnel and antimaterial weapons, target categories, specific uses of nonlethal weaponry, and programs supported by the joint nonlethal weapons directorate.

It is commonly assumed that the number and types of violent episodes around the world are increasing exponentially and that there is an increasing public awareness due to the growing visibility provided by the media. If these assumptions are true, any new type of control mechanism, whether lethal or nonlethal, will be subject to enhanced public scrutiny. The use of nonlethal weaponry in new forms of conflict needs to be discussed, debated, and understood by American citizens, whether in uniform or civilian. This book makes a significant contribution to that discourse.

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