1987

The Automated Battlefield

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Recommended Citation

Bottoms, Albert A. (1987) "The Automated Battlefield," *Naval War College Review*: Vol. 40 : No. 3 , Article 16.
Available at: https://digital-commons.usnwc.edu/nwc-review/vol40/iss3/16

Pacific, is not quite so useful. As one who has experienced delays in having one's work published, I can sympathize with writers' and editors' frustrations over slow publication processes. However, the fact remains that any volume on contemporary strategic affairs that is not brought reasonably up-to-date prior to publication is inevitably handicapped by its omissions. Accordingly, while this volume can be recommended for specialists who can fill in the gaps for themselves and can benefit by the British perspective on a region where Great Britain is no longer a major actor, novices in Asian security affairs need to be more cautious in assessing these analyses.

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Barnaby, Frank. *The Automated Battlefield.* New York: Macmillan, 1986. 180pp. $18.95

The vision of the automated battlefield is more aptly described as a battlespace where the opposing forces will be located, tracked and targeted by systems that employ high capacity data-links, computer-assisted intelligence evaluation, and automated fire control of weapons with pinpoint accuracy and enhanced lethality. All this occurs increasingly in real time due to the enabling factors of microelectronics and materials. This battlefield of the near future may become so lethal as to be turned over to robots and func-tionoids. Consider the parallel accomplishments—here today—of Remotely Piloted Vehicles (RPV) and the powerful Multiple Launch Rocket System (MLRS).

Frank Barnaby provides a contextual setting for a discussion of the potential and the implications of military technologies that are, for the most part, here today. Technologists lost in the trees of their art, and military practitioners who are wedded to tradition ignore this book at their peril. Futurists, explorers of warfighting concepts, and those interested in the interactions of technology and military strategy will find much to chew on.

Barnaby describes a disastrous tank battle of the future with the lament that the tankmen heeded not the warnings of the technologists. Nor could these leaders face the idea that their tanks could have been made obsolete by technological advances. Tanks are not the only potential military dinosaurs that Barnaby addresses in this book.

Automation, machines that think—functionoids, militarized robots, missiles, RPVs that operate on land, in the ocean, in the air, and in space—form the bases for the battlespace of the future. These techniques, coupled with weapons of enormously increased lethality, will force a reappraisal of tactics and procedures for waging armed conflict. The automated weapons of the future are being phased into the arsenals of the major powers and increasingly are being found in the Third World. Automation tech-

nology has an equalizing effect. Only cost slows the spread of high technology weapons. With this spread comes the spectre of nuclear (or biological) terrorism.

There is material of interest here to Army, Navy, and Air Force practitioners. Barnaby effectively explains the significance of the advances in computer technology. The reader is led to vantage points from which he can make his own assessments.

Barnaby advances the interesting idea that technology may lead to practical conventional deterrence. New technologies make defense much more cost-effective, indeed more obtainable, than offensive systems. Somehow there is a hint of a quest for technological "Maginot Lines." What is clear is that the tanker, the missileer, and the aircraft carrier proponent must continue to look for technological work-arounds on the broadest scale. Technology changes how warfare missions are carried out but not the mission itself.

There is an area about which Barnaby, a nuclear physicist, chooses to remain silent—biotechnology. It would seem that there is a parallel path where offense is incomparably more cost-effective than defense. Leaving aside the various manifestations of biological warfare, it just may be that "organic computing" may provide the size and capacity breakthrough needed to accomplish true robot warfare. The biotechnologists tell us that we are on the threshhold of molecular-scale computers. These technological changes may occur within the expected service life of present day aircraft carriers and manned bombers.

Buried in chapter six is an insightful criticism of American use of war games. Barnaby asserts that failure to consider human values has led in the past to exaggerated expectations from military approaches. That criticism might also be applied to the prognostications contained in *The Automated Battlefield*; however it is impossible to ignore the picture, hazy as it might be, of warfare in the computer age.

This book belongs on the professional military bookshelf and should be required reading for all involved in developing future force concepts and the structures to support them.

<div align="right">
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Rallo, Joseph C. *Defending Europe in the 1990s—The New Divide of High Technology.* New York: St. Martin's Press, 1986. 136pp. $18

Paul, Derek, ed. *Defending Europe: Options for Security.* Philadelphia, Pa.: Taylor and Francis, 1985. 351pp. $18

Joseph C. Rallo aims to provide direction toward the feasibility of European political and economic union as a third superpower no longer grounded by American dominance. He seeks a security relationship in the European community with an enhanced role in NATO. He does not seek European union as a distinct