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## Pentagon Games: War Gaming and the American Military.

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## 144 Naval War College Review

research programs and a similar European initiative, and France has even embarked on its own BMD research program.

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Prados, John. *Pentagon Games: Wargaming and the American Military*. New York: Harper & Row, 1987. 81pp. \$9.95

John Prados is a man who knows the subject of wargaming well. As a designer of commercial wargames, he has tangled with the same problems in the creation of a tabletop game as Pentagon strategists do in the invention of a much more complex war simulation. In this book, Prados not only explains the difficulties and faults of using wargames as an accurate simulation of the real world, but delves into the reasons why strategists are so fascinated by the artificial reality they create.

The book begins with a quote from Stephen Vincent Benét which sums up the essential problems of converting slippery reality into hard technical data. "It is all so clear in the maps, so clear in the mind, but the orders are slow, the men . . . are slow to move, when they start they take too long on the way." Men cannot be reduced to "wooden blocks," orders cannot be expected to be executed perfectly every time, and confusion reigns on the battlefield. The war does not proceed as foreseen in the well-ordered world of the wargame—the fog and friction of battle triumph.

A short history of the development of wargaming follows, from early models such as "Go" and "Chess" to more advanced models such as the German "Kriegspiel" which utilized many different types of playing pieces, terrain, and a specific scale to represent size and weight of units. Interesting anecdotes abound throughout these pages, including a short history of the Japanese decision to attack Pearl Harbor and the use of a real-time Kriegspiel which led to the German counterattack at the Battle of the Bulge.

The remainder of the book focuses on the growing use of the wargame as a simulator of reality in U.S. military policy, starting with the "Aggressor" and "Opposing Forces" simulations of the late 1950s and 1960s, to the current "MILES" wargames held at Fort Irwin, California and the Studies Analysis and Gaming Agency (SAGA) games played deep within the Pentagon.

The greatest portion of the book deals with the problems of quantifying the arms and men that form an army. To have an accurate and realistic wargame, the values used for the combat ability of each specific type of weapon and unit must be extremely precise. Firepower, though, is an ambiguous concept. Firepower scores are determined in laboratory conditions where there are no duds, and all equipment works perfectly. Additionally, while each weapon is tested in isolation, in a battle they operate together. Their collective firepower values cannot simply be added to find an aggregate value for

the larger unit. Finally, the decrease of weapon effect over range is not usually figured into the firepower scores. Explosive shells retain the same strength regardless of the distance to the target, whereas solid shot weaponry effect decreases radically as distance goes up. Certain weapons become much more useful than others over small distance changes, but this is not calculated into unit strength.

A further fallacy in the creation of firepower scores lies in the use of the most recent war as the model for effectiveness of weapons, measured by which type of weapons cause what percentage of casualties. However, the technological advances in weaponry render any data obtained in a previous war almost useless for determining the utility of the weapon in the next war. The type of war fought can also change dramatically. The most obvious example is Vietnam where casualty percentages from mines and booby traps were much higher than in the Korean war, from which the weapon effectiveness figures had been drawn. The effects of terrain introduce another level of complexity into the design of a wargame. Like firepower, it is nearly impossible to quantify accurately the effects of terrain upon each piece of equipment moving over it, defending it, or shooting through it. Leadership, troop morale, and training add yet more complexity to the simulation, for weapons cannot be used to their full expected effectiveness if the troops that use them are of poor quality.

All of these uncertainties come to a head when nuclear weapons are introduced into the equation. There has never been a war that has employed tactical nuclear weapons, and the net U.S. experience of combat in a nuclear environment was a series of extremely artificial maneuvers conducted in the 1950s. Very little is known about how these weapons will function in a real war and what their effect will be upon other aspects of the battle. Any quantification of their effects contains a good element of guesswork.

The final type of wargames that Prados analyzes are politico-military simulations. These suffer from further subjectivity as they are usually moderated by human umpires who add their own biases into the game. In many games, the people who caused the game to be played have specific personal agendas and aims which they wish the games to show. Therefore, the umpires force the game to proceed in ways which the players are trying to avoid, thus negating any semblance of realism. One example was a SAGA game which ended in a nuclear war. One player complained that "if your control group had left us alone, we could have negotiated a lasting peace!"

The book includes three pull-out wargames to introduce the novice to the ideas behind simulated wargaming. Although fairly simple, they serve to illustrate the complexities of reducing real-life situations such as Pentagon research and development or budget procurements into playable

## 146 Naval War College Review

wargames. One realizes with a start that the appreciable differences between reality and these games is probably quite similar to the differences between a real war and a Pentagon simulation.

Prados does not state that wargames have no utility, only that now, during a period of peak interest in gaming technologies, they are being used far in excess of their abilities to predict anything real. Commanders who play wargames are often lulled into believing that they have had real battlefield experience, when in reality they have nothing of the sort. The true strength of wargames lies in their ability to inculcate basic tactical concepts into field commanders and to give the experience of making command decisions to higher level officials. To claim that a wargame, however complex, simulates the actual events of a war is the purest fantasy.

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Burrows, William E. *Deep Black: Space Espionage and National Security*. New York: Random House, 1987. 401pp. \$19.95

As impelled by the title, William Burrows takes the reader on a fantastic, sometimes disconcerting, and often incredible journey into the deepest reaches of the so-called black world of the U.S. intelligence community. He approaches the subject with the zeal of an investigative reporter preparing an exposé and the

plodding style of a graduate student writing a history seminar paper. His uneven handling of this material, while a distraction, fortunately does not detract from the fundamentally solid nature of the book.

Mr. Burrows begins and ends his book with the same thesis. According to him, "[I]n the case of arms control, it is important for the citizens of the Western democracies to grasp enough of the process of the national technical means of verification and about space surveillance in general so that they can make informed judgments on the matter, rather than abandon such an important subject to the whims of successive politicians and their subordinate ideologues."

Despite the title, this work addresses much more than just the business of "space espionage and national security." The contents of the book range from a continuing discourse on the competition between the U.S. Air Force and the Central Intelligence Agency (CIA) for control of U.S. space-based reconnaissance assets, to a review of the growth of the U-2 and SR-71 programs, to rather elaborate (and one suspects sometimes speculative) discussions of past, present, and future space surveillance systems. The author even includes a discussion of the Soviet space reconnaissance programs and antisatellite weapons as he and his sources understand them. The technical descriptions make for fascinating reading, and the conviction with which Mr. Burrows describes the sophisticated equipment makes one believe that the