



1st Combat Camera Squadron (Stephen Faulstich)

Adversarial Use of Chemical and Biological Weapons

NBC exercise at Camp Casey, Korea.

By JOHN F. REICHART

Interactive tabletop planning games and associated efforts are advancing the understanding of counterproliferation issues among military officers and defense officials. The object of one such recent endeavor, designed by the Center for Counterproliferation Research at the National Defense University (NDU), is twofold: to determine if games offer insights into the possible adversarial use options, and to assess the way in

which U.S. and allied forces are taking the threat of chemical and biological weapons (CW/BW) into account when planning and performing operational tasks.

Examining these issues as well as the manner in which CW/BW proliferation affect service doctrine and operating principles began with workshops involving over 400 participants. As part of the workshop series, NDU cosponsored a major conference with the Air Force. A simple game was developed to indicate how personnel in the field—planners, operators, intelligence analysts, logisticians, and others—thought about the effect of

John F. Reichart is deputy director of the Center for Counterproliferation Research at the National Defense University.

Report Documentation Page

Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE 1998		2. REPORT TYPE		3. DATES COVERED 00-00-1998 to 00-00-1998	
4. TITLE AND SUBTITLE Adversarial Use of Chemical and Biological Weapons				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) National Defense University, Institute for National Strategic Studies, 260 5th Avenue SW Fort Lesley J. McNair, Washington, DC, 20319				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

CW/BW proliferation on their individual areas of responsibility. More specifically, the project sought to learn how much, if at all, these military officers and defense officials had considered how adversarial possession or use of CW/BW might affect their ability to operate in peacetime and in war.

The Planning Game

While this game has evolved in both scope and content, the basics have remained constant. Participants assume the role of a Red planning cell and are asked to make recommendations on the use (or threatened use) of CW/BW in support of stated political and military objectives by a regime possessing such assets. Ideally, each planning cell consists of ten players with broad operational, planning, and other relevant expertise. To refine the task and make development of a Red war plan manageable, players are usually given a specific objective, either military (for example, to degrade Blue ability to sustain high tempo air operations) or political (to split the Blue coalition). Through an interactive discussion led by a facilitator, the

Red planners look for weaknesses in the Blue coalition that could be exploited by threat of CW/BW

Red team initially explores a range of political and military uses for CW/BW from its own perspective, then narrows them to a few specific courses of action that constitute a rudimentary plan. The process typically will take two hours. If time allows for a second move, players assume the role of a Blue planning cell which is tasked to plan against the Red plan. Given near-perfect intelligence about Red planning intentions (and specifically plans for CW/BW employment), Blue planners develop Blue responses specifically designed to deny the benefits Red planners expect from employing CW/BW against Blue.

More than 800 officers from O-4s to O-8s have played the game, and some 75 plans have been created. Although a full analysis of these has yet to be done, some general observations can be drawn. In addition, in-depth survey data on player attitudes and perceptions has been collected on nearly a hundred participants.

General Observations

First, virtually every Red planning cell addresses common elements of the tasks presented. Most discuss the role and nature of nuclear deterrence. They often consider, for instance, whether Blue has a threshold for CW/BW use against its forces beyond which Red risks nuclear retaliation.

Moreover, Red teams inevitably ponder the ability to use CW/BW capabilities to deter conventional and nuclear Blue forces. Red planners also look for weaknesses in the Blue political and military coalition that could be exploited by possession, threat, or use of chemical or biological weapons. For example, many Red teams seek to capitalize on differences in CW/BW defensive capabilities of Blue coalition members. Red cells typically discuss national interests. Perceived asymmetries of interest are one factor in the Red willingness to use CW/BW. Finally, Red teams nearly always evaluate the Blue ability to operate in a CW/BW environment.

What common themes emerge in Red warplans? First, there is no single solution in terms of potential scale and scope of use. Perhaps because this is a *planning* exercise (Red intends to go to war but a war is never played), all groups incorporate some degree of CW/BW in their planning. However, planned use ranges from the high to low end. Some groups detect merit in widespread employment; others are more circumspect and tailor use in discrete and limited ways.

Biological weapons are almost always weighed, which was somewhat unexpected. Indeed, they seem to be weapons of choice within the game. Also of interest is their relatively early use in many Red plans. They are not usually weapons of last resort. The early use of either chemical or biological weapons is frequently seen as a means of offsetting Blue conventional superiority. In particular, non-lethal biological weapons appeal to Red planners. They are often selected to prepare the battlefield before overt hostilities. A frequent Red planning objective is causing Blue forces to become inoperative and require medical treatment (creating a logistics burden when Blue needs resources for other purposes).

Red teams are imaginative in employing a full range of delivery capabilities from missiles to special operations forces, sometimes in what Blue might consider terrorist acts. Red planners thus often regard Blue forces—and the Blue homeland—as vulnerable to the threat of CW/BW use.

Generalizations about the game's sociology are also interesting. For example, when U.S. and allied officers assume the role of Red planners, they often think about CW/BW employment in nontraditional and sometimes startling ways. Their plans reflect lively debate. Yet often the same players reveal an entirely different persona when acting as Blue planners trying to cope with a Red CW/BW warplan. They downplay CW/BW effects on Blue operations and are likely to depend on nuclear deterrence as a crutch. Another approach by Blue players is to go into denial or to espouse a too-hard-to-do mode in the face of Red CW/BW use.

Simulated chemical attack, Roving Sands '97.



U.S. Air Force (James D. Mossman)



Unloading NBC reconnaissance systems vehicle.

1st Combat Camera Squadron (James D. Mossman)

Survey Results

In addition to general observations resulting from facilitating the games, NDU has recently begun to administer detailed questionnaires to participants. In general, the survey has confirmed the outcomes reported above and provided a more complete view of how the players—as both Red and Blue planners—regard CW/BW use.

Red as well as Blue planners agree that CW/BW use increases Red chances of success

Purposes, risks, and advantages of Red CW/BW use. Red as well as Blue planners agree that CW/BW use increases Red chances of success. In contrast, while Red planners tend to agree that military advantages outweigh risks, Blue planners disagree. There is strong agreement among Red

and Blue planners that the primary aim of Red use is offsetting Blue conventional superiority.

Overall effectiveness in contributing to Red's political and military objectives. When asked to what extent team plans (which always include some type of CW/BW threat or use) contribute to political and military objectives, Red team players across the board respond that CW/BW impact can be considerable. The mean judgment approaches the moderate extent category. However, the same participants, when playing the role of Blue planners, assess its effectiveness less generously, the mean judgment being that CW/BW will help the Red plan only to a little extent.



Administering anthrax vaccinations, Southern Watch.

USS John C. Stennis (Mike Larson)

Effectiveness of CW/BW against specific military targets. In terms of targets most affected by CW/BW use, Red and Blue planners conclude that port facilities, airfields, and the Blue capital are the most vulnerable. Again there is a major difference over what the effect will be, with Red planners again approaching the “moderate extent” and Blue planners the “little extent” evaluations.

Nuclear weapons and deterrence. Survey data reveals that the Blue nuclear deterrent bears heavily on Red planners. Over three-quarters of respondents regarded the credible threat of nuclear retaliation by Blue as an important con-

sideration in the way they approached the size, scope, and type of Red CW/BW plan. Red planners most often cite that deterrent, followed by a credible Blue declaratory policy, as the single most important factor inhibiting CW/BW employment. Faced with a CW/BW plan designed by Red, Blue planners think nuclear capabilities provide a more effective deterrent to their actual employment than Blue conventional superiority.

Timing of use. In general, Red planners agree that the earlier BW is used, the more helpful it is for Red forces. Red perceives early use as most effective against targets associated with Blue reinforcement and in suppressing air sorties. Blue planners are only slightly less in agreement that early use will be effective. Both Red and Blue planners surmise that early CW use would be less effective against Blue than early BW use.

Blue requirements in face of nuclear, biological, and chemical (NBC) threat. Blue planners cite a multitude of enhanced capabilities they would want if faced with CW/BW employment by an adversary. Most frequently named are improved CW/BW detection and warning, better protective equipment, superior intelligence, theater missile defense, and more extensive training/doctrine.

Understanding the operating environment. Blue and Red players overwhelmingly concur that U.S. planners and operators did not have a sufficient understanding of the CW/BW operating environment or the effects of these weapons on warfighting.

When drawing conclusions from any game one should remember that gaming is artificial. Yet the question arises over whether persistent patterns of behavior during play result from game artifacts or a more fundamental problem reflecting the state of U.S. CW/BW doctrine, the related training experiences of participants, or the perception of policy. While the answer is open to more rigorous research, the NDU project places its bets on the latter. As Blue planners, players seem to have few traditional tools to rely on and little relevant experience, doctrine, or training to resolve problems posed by Red plans employing CW/BW. These limitations do not appear to apply when the players are asked to stretch their imaginations and consider using the weapons as an adversary.

The Need for Red Teaming

Research thus far indicates that U.S. forces and coalition allies will face serious obstacles to overcoming a CW/BW threat to operations. It shows that planners, depending on whether they view the problem from a Red or Blue perspective, have very different perceptions of the magnitude of the threat, how the weapons might be used against friendly forces, and the U.S. ability to cope with them. At the end of the exercise one frequently hears the comment that “I never thought about the problem this way.” What is the truth? Are adversaries likely to see the same possibilities for CW/BW employment as the Red planners? Or are they more likely to be deterred from that use or be unpleasantly surprised by its ineffectiveness, as our Blue planners believe?

Although gaming and research can shed light on adversarial use of CW/BW, it is time for the Armed Forces to invest more in sustained analysis. There is no dedicated military activity on the scene today that is considering CW/BW issues from an adversarial perspective. In the absence of better intelligence on capabilities and intentions, Red teaming remains one of the principal ways to investigate how an adversary might think of using weapons the United States knows some are acquiring, envision the impact on U.S. and coalition forces under current doctrine, and understand and recommend tactics and procedures for countering CW/BW use in various situations. With the participation of professionals, a dedicated Red team can have the additional advantage of acquiring credibility while not encountering the not-invented-here syndrome. That will help substantially in finding solutions to the mounting dangers of chemical and biological weapons proliferation.

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