

CONTRIBUTIONS TO WAR STUDIES

Number Three



IRAQ'S VISION OF THE NUCLEAR BATTLEFIELD

By
Norman Cigar, Professor of Strategic Studies
U.S. Marine Corps Command and Staff College
Quantico, Virginia

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Editorial Policy

Contributions to War Studies

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EXECUTIVE SUMMARY

Iraq has long sought to acquire nuclear weapons and the Iraqi leadership has viewed nuclear weapons as a practical warfighting tool rather than only as a doomsday deterrent with a largely political significance. In fact, Iraqi leaders have approached the possibility of a nuclear battlefield with an equanimity that has long disappeared in the West. At the heart of the Iraqi Army's thinking was the assumption that a battlefield on which weapons of mass destruction (WMD) would be present, including one in which nuclear weapons were used, would be survivable.

The conclusions in this study are based on a recently-discovered Iraqi doctrinal manual devoted to the role of nuclear weapons at the tactical level (published in July 1988 by the Iraqi military), which was captured by U.S. forces during the Gulf War and has since been declassified. Specifically, the document in question is entitled *Pamphlet: The Operational Use of Weapons of Mass Destruction; Volume 2; Part 2; Foundations for the Use of Nuclear Weapons in War*.

This doctrine was anticipatory, since Iraq never acquired nuclear weapons, but the concepts found in the manual reflect a vision for the use of nuclear weapons on the battlefield and Iraq's intent to integrate nuclear weapons into its arsenal as a capability to be available for use along with conventional weapons systems.

The manual sees tactical nuclear weapons as applicable both in the defense and offense, and nuclear weapons in some ways are said to resemble conventional weapons, being in a way no more than bigger artillery: "Ordinarily, nuclear fires are used in the same way and with the same objectives for which non-nuclear fires have always been used." Rather than such doctrine being merely theoretical musings, Iraq likely would have considered using nuclear weapons given the appropriate scenario, once it acquired that capability, since the explicit focus of this doctrine at the tactical and operational levels indicates a readiness to envision nuclear weapons on the battlefield.

Instead of remaining at a general descriptive level, in many instances the doctrine in this manual becomes prescriptive and spills over into detailed tactics, techniques, and procedures, with a very practical "how-to" focus, indicative of an expectation of a practical applicability of this doctrine in the not-too-distant future. In fact, formats are provided in the appendices to staffs in preparing nuclear fire plans, operational orders, and requests for fire support that highlight the very practical thrust of this manual.

Ultimately, one cannot assume a mirror-image evaluation by Iraq on whether and when to resort to nuclear weapons in the same way as might be the case with decisionmakers in the U. S. or the former USSR. Iraq's nuclear threshold, in fact, may be considerably lower

than desired, particularly in regional conflicts. Perhaps equally disconcerting is the somewhat lackadaisical and matter-of-fact approach and perspective about a nuclear battlefield expressed in this manual, and what would seem to be an understatement of the potential destructiveness of nuclear weapons.

If Saddam Hussein's efforts to preserve and develop Iraq's existing chemical and biological capabilities and continued efforts to acquire a nuclear capability since the end of the Gulf War are any indication of his priorities, then it is quite probable that Iraq's leadership continues to view nuclear weapons as a useful asset and probably one with applicability even to the battlefield. Past, current, or impending measures to eliminate Iraq's WMD capability have prevented and are intended to prevent Saddam from acquiring a nuclear capability and only if this effort is successful will Iraq's nuclear doctrine remain unfulfilled, as was the case at the time this manual was written.

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INTRODUCTION

As is common knowledge, Saddam Hussein has long sought to acquire nuclear weapons. Although many accounts have appeared about this effort, Iraq's vision for the actual role of such weapons has been largely ignored. In part, this may be due to the paucity of available sources, which have focused research primarily to Iraq's nuclear development program. Yet a key related question is that of determining the likelihood and manner of the actual use of nuclear weapons, in order to understand whether such weapons are to be limited to a largely political role as a strategic deterrent or are to be employed, potentially, in combat. This study will look at this neglected aspect of the nuclear equation and will suggest that the Iraqi military leadership has viewed nuclear weapons as a practical warfighting tool rather than as only a doomsday deterrent with a largely political significance and that those leaders have approached the possibility of a nuclear battlefield with an equanimity that has long disappeared in the West. Moreover, given the sensitivity of the issue, it is implausible that Iraq's military leadership would contradict the thinking of the country's civilian leadership and, as such, would very likely also reflect the latter's thinking.

Not surprisingly, given the opposition from the international community to Baghdad's development of a nuclear capability, there has been little public discussion in Iraq about nuclear weapons or about the strategy for their use, although there have been more frequent allusions to their potential use by other countries against Iraq. Based on the writings of those scientists who have defected, it appears that it was not civilians who were involved in developing nuclear doctrine in Iraq, unlike the situation in the U.S. in the early years, where civilian thinkers dominated the discussions, and where there was little military contribution. Our knowledge of this facet of Iraqi thinking, for now, is limited to a key military doctrinal document devoted to the role of nuclear weapons at the theater level, published in July 1988, which was captured by U.S. forces during the Gulf War and has since been declassified. Specifically, the document in question is entitled *Pamphlet: The Operational Use of Weapons of Mass Destruction; Volume 2; Part 2; Foundations for the Use of Nuclear Weapons in War*. The manual appeared under the aegis of the Iraqi Army's General Staff, Directorate of Training, Chemical Branch, and carried an Iraqi security classification of "Restricted to the Armed Forces."¹

This study will highlight salient aspects of Iraqi thinking about nuclear war as reflected in this manual. To be sure, in a sense this manual was theoretical, insofar as Iraq at the time did not possess --nor has it since developed-- a nuclear capability, much less one that could be used tactically. According to one Iraqi scientist who subsequently left the country, Husayn al-Shahristani, Iraq in 1990 was about six months away from developing its first nuclear device, which of course would still have put a capability to weaponize such

a capability for use at the tactical level some further time off.² A senior adviser to Saddam Hussein, Lt. Gen. Amir Al-Sa'di, subsequently confirmed the general lines of this account, noting that Iraq had come close to building an atomic bomb by 1991.³ While others, such as David Kay, the head of the first UN inspection team in Iraq, put forward more modest estimates, even the latter still noted that "At the time of the Gulf War Iraq was probably only 18 to 24 months away from its first crude nuclear device and no more than three to four years away from advanced, deliverable weapons," confirming a near-term horizon for Iraq's acquisition of at least some nuclear assets.⁴ As such, the doctrine contained in this manual was anticipatory, rather than of immediate applicability. Nevertheless, the existence of the manual is significant as an indication that the Iraqi Army was thinking ahead to a time when Iraq would have nuclear weapons available and that it was preparing to integrate them into its arsenal and into its overall military doctrine. While initial production of nuclear devices might have been modest, this doctrine envisions the existence of a fairly robust nuclear arsenal and could represent a goal of more extensive desired production levels in the future.⁵

The Iraqi Army clearly saw a need to develop such a doctrine for future use, assessing that the introduction of nuclear weapons had marked a significant change in operational art, and that this new capability would have a similar impact for the Iraqi Army. Indeed, when speaking of "the new elements and effects" of nuclear weapons, the manual underlines that now "the commander and the staff must take [them] into consideration at every phase of a plan and of its execution" (p. 33). There is no way to know for certain whether there have been subsequent editions with modifications or radical new developments in thinking since this manual was published, although the fact that Baghdad has not acquired such weapons in the intervening years may suggest that the Iraqis may not have been challenged since that time to rethink their approach in this arena by actually having had to deploy and integrate such weapons into a coherent political and military strategy or that they have had the opportunity to react to feedback from public debate, exercises, or other practical experience. Therefore, despite the time elapsed since its appearance, even this early document provides a useful glimpse into Iraqi perceptions about nuclear weapons and nuclear war, and is a likely roadmap for the future should Iraq ever acquire such a capability.

THE CONCEPT OF NUCLEAR WAR

THE LIKELIHOOD AND SCOPE OF NUCLEAR WAR.

In general, Iraqi thinking about nuclear war appears to consider this phenomenon as not only a distinct possibility in certain circumstances but also something which one can countenance with a fair degree of equanimity and confidence. Iraqis had long considered the possibility of having to fight on a nuclear battlefield, albeit in an environment where only an enemy, probably Israel, would possess nuclear weapons. As such, the focus of early Iraqi thinking and training had been defensive, with an understandable emphasis on force protection.⁶ Apparently, Iraq saw the use of nuclear weapons on the battlefield as something to be expected, attributing this intent to Israel as it applied to some plausible scenarios. For example, Iraq assumed that Israel had at least considered using nuclear weapons during the 1973 War had the situation on the ground deteriorated significantly to Tel Aviv's detriment.⁷ This manual, in fact, begins by noting that "It is not far-fetched that the Iraqi Army will take part in a future Arab-Israeli war in which the enemy may resort to using nuclear and other weapons of mass destruction" (p. 2).⁸ On a longer time horizon, Iraq has also been focused on a potential Iranian nuclear threat, going back to the days of the Shah, and this has been a concern which has continued to the present.⁹

As such, there would be little remarkable about the prudent defensive notions contained in the doctrine in this manual, apart, perhaps, from the perception of a high probability that nuclear weapons would be used in war by others. However, the manual under study here goes well beyond a force protection posture. Apparently, when the possibility of the acquisition of nuclear weapons had appeared to be within Baghdad's grasp, Iraqis began to extend their thinking to not only defensive measures. In effect, considerations about providing guidance for survival on a battlefield on which the adversary might use nuclear weapons are decidedly secondary in the doctrine presented here. Rather, the thrust of the doctrine is primarily focused on the actual use of nuclear weapons by friendly forces in both a defensive and offensive mode, with a pronounced emphasis on the offensive.

As Iraq did not possess nuclear weapons at the time, or at any time since, the drafting of such doctrine was still clearly anticipatory, but even the fact that such doctrine existed is in itself highly suggestive of Iraq's objectives and expectations in this arena. It is also significant that the level of analysis of the doctrine in this manual is below the strategic deterrence level and is, specifically, at the operational and tactical levels. Realistically, the distinction among the levels of war in the nuclear arena may well be more theoretical than actual, given the destructive power, speed, and decisive effects that nuclear weapons can have, but the explicit intent to focus at the tactical and operational levels does indicate a readiness to envision nuclear weapons on the battlefield and points to a considerably lower nuclear threshold than might otherwise be the case.

THE NATURE OF NUCLEAR WAR.

At the heart of the Iraqi Army's thinking was the assumption that a battlefield on which weapons of mass destruction would be present, including one in which nuclear weapons were used, would be survivable. For example, a statement in a pamphlet found in the field files of a Republican Guard unit underlines the basic assumption of survivability on the nuclear battlefield as a routine matter: "A reminder: units and individuals who are alert and have a high effectiveness level can fight and survive in a nuclear battle."¹⁰ Likewise, a 1980 pocket card with instructions for survival in such conditions posited that crews should plan to remain inside their armored vehicles for 48 hours after an attack with weapons of mass destruction for the purpose of force protection.¹¹ That this card was still in use among Iraqi forces at the time of the Gulf War, when it was captured, suggests that there had not been much change in Iraqi thinking on this issue over the years. In fact, after Iraq's 1990 invasion of Kuwait, defensive preparations for possible operations on a nuclear battlefield, albeit a situation to be initiated by an adversary, were part of the thinking of units in the field. For example, the Main Staff of the 5th Mechanized Infantry Division drafted a "Damage Control Plan," dated 17 August 1990, classified Top Secret, which it sent to subordinate units specifically for an eventuality where the enemy might use nuclear weapons against Iraqi fielded forces, arguing that "It is possible that the enemy may launch atmospheric explosion strikes in those areas where headquarters and units are located in the suburbs of cities."¹² In September 1990, the Republican Guard even requested from Iraq's Military Industry "pills to diminish the effects of radiation," apparently a reference to potassium iodate.¹³

This manual recognizes that massive casualties could result from nuclear strikes among the military and the civilian population on both sides, which "might be a means of deterrence from using nuclear weapons, with neither side willing to accept such casualties" (p. 38). However, according to the manual, the most probable way to avoid massive casualties, instead, will be by placing some limitations: "These limits may include the restriction of geographic areas in which the use of nuclear activity is permitted or the determination of the maximum size of nuclear weapons with atmospheric explosions only" (pp. 38-39). In fact, the underlying premise of the doctrine as developed in this publication remains that escalation to nuclear war is almost automatic and to be expected: "Ordinarily, there is no clearly distinct boundary between the conditions of nuclear war and non-nuclear war as long as both contending sides or one of them possesses nuclear weapons" (p. 2). And, the prospects for mutual deterrence are seen as limited, perhaps drawing on the experience of the Iran-Iraq war, in which both sides used chemical weapons, rather than being deterred from their use. Apart from the strategic potential of nuclear weapons as a deterrent or strategic strike weapon, moreover, Iraqi doctrine also considered this capability as a warfighting tool to be used on the battlefield. If both combatants have nuclear weapons, while mutual deterrence may place limits on the size of weapons used and the area affected, the assumption in the manual is that that in and of itself will not deter their battlefield use: "As long as one or both of the contending camps has nuclear weapons, the threat of their use will continue" (p. 40). The anticipated potentially widespread use of nuclear fires in an expected escalation is made clear from the beginning: "The battlefield, which is for now free of nuclear activity, may transform itself into an arena full of nuclear explosions" (p. 2). However, at the same time, the possibility --however unrealistic-- is envisioned of a de-escalation from nuclear warfare in a controlled manner in a subsequent phase of a war, even after initial intensive or unlimited

nuclear exchanges, because of practical concerns, as the result of factors such as of "a diminution of the two belligerent parties' ability to produce and deliver nuclear weapons" (pp. 34-35). Acknowledging that a full-scale nuclear exchange between two well-armed blocs could have a devastating effect, leaving in the field during the first two days "two shattered armies that will be difficult to save or reinforce," the writers of this publication nevertheless seem to think that rebuilding may be far from impossible and that even such a war is survivable and winnable. Mutual nuclear exchanges between two countries can precede field operations and, in order to prevent the enemy from deploying his forces effectively initially, in fact, "continuous attacks" are needed (p. 36). Further attacks are seen as necessary to prevent the enemy from reconstituting his forces, and once a country has reconstituted its forces and regained combat effectiveness, it can then "turn its efforts once again to winning the war" (pp. 35-36). Indeed, the stated assumption is that if the number of nuclear weapons used on a battlefield is limited, "conditions quickly return to their normal situation" (p. 101).

لايجوز تداولها خارج
القوات المسلحة

كراسة رسمية خاصة

الرقم ٤٧٠

كراسة

الاستخدام التعبوي
لاسلحة التدمير الشامل

المجلد الثاني - الجزء الثاني

اسس استخدام الاسلحة النووية
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رئاسة اركان الجيش

دائرة التدريب

مديرية الصنف الكيماوي

الطبعة الثالثة

تموز - ١٩٨٨

Original Title Page of the Iraqi Doctrinal Manual

NUCLEAR WEAPONS AND THE BATTLEFIELD

According to the manual, nuclear weapons at base are perceived to be yet another warfighting tool, albeit one with considerably greater lethality than conventional weapons, and thus one requiring operational and tactical adaptation on the battlefield. However, according to the authors of the manual, basic principles of warfighting will not change because of the nuclear factor: "ordinarily, there is no clear distinction between nuclear war and non-nuclear war. . . The nature of battle will reflect the traditional earlier concept" (p. 40).

To be sure, the Iraqi military recognized that nuclear weapons, because of their lethality, could have a disproportionate impact on the battlefield, indeed that "by themselves they may dominate the battlefield, along with mobile forces, [the latter] exploiting the success which nuclear fires have achieved" (pp. 41-42). As for targets, the manual identifies traditional strategic targets for nuclear attacks in cases of unlimited nuclear war ("if no limits are imposed on the use of nuclear weapons"), to include means of production, storage and transportation facilities, bases, and airports, while "administrative and civil organs would be paralyzed" (pp. 100-101). In the initial phases of a war, friendly air assets will be a "high-priority target" for enemy nuclear strikes, followed by the attempted destruction of one's own nuclear arsenal by the enemy (pp. 43-44). In this initial phase, "destruction will be great," making resupply and transportation in general difficult (p. 44). Morale, too, is seen as a concern, given the destructive power of nuclear weapons, although the manual provides no real guidance on how to deal with this issue, except for simply mentioning the importance of "leadership, discipline, training, culture, and dedication" in such a situation (p. 45).

The manual does admit to some uncertainty, but largely in the area of the intensity which a nuclear war would involve: "It is difficult to predict even approximately the level of the use of nuclear weapons in such a wide range of conditions which will be faced in wars in the future. The principal character of the war might be an exchange of nuclear weapons between the two sides, who will seek to survive by relying on concealment or breaking contact (attack and withdrawal actions), while at the same time making an effort to prevent their opponent from maneuvering" (p. 41). However, overall, the emphasis in this manual is on the utility of nuclear weapons on the battlefield in such areas as the possibility of causing enemy casualties, blocking enemy attacks, and facilitating one's own maneuver in penetration or flanking actions (p. 40). And, this utility extends to operations both in the defense and the offense.

DEFENSIVE OPERATIONS

In the defense, nuclear fires can be a potent factor to counter enemy attacks and, "in the majority of cases" can be used by themselves to repulse the enemy and to meet other unexpected threats (p. 88). The enemy can be assumed to want to target key terrain features held by one's own forces, especially terrain features which retain their operational-level importance as observation points before an attack (p. 43). Obstacles will also remain important, as they can canalize and slow down enemy attacks, "which will provide enough time for strikes on them with nuclear weapons" (p. 43). In fact, obstacles will now be constructed with nuclear weapons in mind (p. 36) in order to enhance the effect of nuclear fires. Using such obstacles, "once the defending force succeeds in mastering and stopping the enemy, it may launch a hasty counterattack with nuclear weapons to expel and destroy the enemy forces on both sides of the obstacles," whereupon one's own forces, protected in shelters, can come out and finish the job (p. 37). At the theater level, likely targets of enemy nuclear attacks would include the other side's own nuclear launch capabilities and armor units, (p. 42), and air forces (p. 43).

OFFENSIVE OPERATIONS

Likewise, in the offense, combining maneuver and nuclear fires is seen as a winning combination on the new battlefield. There is considerable stress on the need for increased tempo in operations, and particularly for quicker decision-making, in order to exploit fleeting opportunities in which nuclear weapons can be used to greatest effect. On the offensive, the conventional forces of choice on a nuclear battlefield are small mobile units, including heliborne forces, which can maneuver independently and which can operate over a wide area in combination with nuclear fires (pp. 40-41). At the same time, armored forces are also seen as appropriate in this environment, because of their mobility, firepower, and relative degree of force protection (or as the manual terms it, "partial protection") (p. 40).

A FUNCTIONAL ANALYSIS OF THE DOCTRINE

The manual recognized the major changes in operational art which a nuclear environment would require and sought to provide guidance on how to adapt in order to conduct operations successfully, both in the defense and in the offense. As the manual stresses, nuclear weapons are now a factor with which all Iraqi planners and commanders will have to become familiar: "It is vital for all commanders, subordinate commanders, and staff personnel to know the characteristics, capabilities, and limitations of these [nuclear] weapons, as well as their various effects on the nature of operations and actions which characterize modern war" (p. 2). The standard warfighting functions can serve as a useful approach to gauge specific elements of this doctrine and to understand how the leadership believed the Iraqi Army would actually operate on the nuclear battlefield and will be used here as the general analytical framework.

FIRES

Tactically, nuclear weapons in some ways are said to resemble conventional weapons, being in a way no more than bigger artillery: "Ordinarily, nuclear fires are used in the same way and with the same objectives for which non-nuclear fires have always been used" (p. 39). Specifically, the intent in this sphere is that "Nuclear fires will be used just as other artillery fires with the goal of destroying or paralyzing enemy positions and to hinder and harass the enemy's operation [by which he intends] to recover his combat effectiveness" (p. 40). By the same token, nuclear weapons do not replace conventional fires completely, as the latter are to be retained to supplement nuclear weapons as needed, while chemical weapons may also be used by friendly forces in the attack in conjunction with nuclear and other weapons (pp. 86-87). In fact, if both sides have nuclear weapons, "both sides will have recourse to both nuclear and non-nuclear weapons equally" (p. 41). The manual does recognize the desirability of a separate fire plan for nuclear strikes, distinct from the ordinary artillery fire plan (p. 11), and provides a sample in an annex, although this guidance in and of itself also underlines the assumption that it is necessary and feasible to integrate nuclear weapons into existing operations. This doctrine even envisions the use of air-launched nuclear munitions in a "close air support" [*al-isnad al-qarib*] mode (p. 12), notwithstanding the fact that that is always a delicate mission, especially given Iraq's lack of training and experience in such operations. A fire support coordination line [*khatt tansiq al-nar*] is to be set up, beyond which there will be a nuclear free-fire zone which does not require coordination (p. 12). Appropriately, the time of launching nuclear strikes is designated as "N-hour" (p. 12).

COMMAND AND CONTROL

The accommodation required for the nuclear battlefield will include establishing effective command and control over these weapons in order to maximize their utility while avoiding potential friendly damage. As with other weapons systems, the determination of issues related to the use of nuclear weapons in the field --such as that of their role within a plan and their relation to the mission of various units, as well as the numbers to be used and methods of delivery-- is seen as being within the purview of the commander in the field, to be exercised with the assistance of his staff, "ordinarily at the corps level, since planning, synchronization, and the means of communication for the use of nuclear weapons are within its capabilities and span of responsibility" (pp. 2-3). The actual allocation of nuclear weapons would be handled by the commander of the army, who would allocate such weapons to his subordinate corps on a limited basis, "either for a specific phase of operations (*harakat*) or enough for several days' use" (p. 4). The corps commanders, in turn, would then distribute these assets to subordinate divisions, while retaining control over a "necessary proportion" in reserve. Indeed, nuclear weapons, given their ability to influence the battlefield, are said to constitute in themselves a reserve for the commander, obviating the need for large reserves of conventional forces (p. 43). Division commanders could then further distribute these weapons to their own subordinate brigades, although going down to the brigade level is seen as "an exception at present" and only to be done when brigades are operating in isolation on "distant fronts" or in "movements of a fluid nature" (p. 4). In order to maintain an adequate level of force protection and of coordination, corps commanders and sometimes division commanders would ordinarily retain the authority to order the launch of nuclear weapons, even when the latter had been distributed to subordinate levels (p. 14). If nuclear weapons are allocated to subordinate units, the subordinate unit's artillery commander is to request permission to launch a nuclear strike from the corps artillery commander and the corps operations staff; upon authorization from the corps commander, the corps will then warn subordinate units of impending strikes and issue its approval for the requesting subordinate unit to launch. The same procedure is to be followed if weapons have not been distributed to lower levels (pp. 14-15). In order to be able to engage targets in a timely manner, "avoiding the loss of time" is seen as vital, and the new doctrine calls for a new staff cell (composed of elements from the unit's operations, intelligence, logistics, air, artillery, chemical warfare, security, and engineer elements) to be created within the headquarters in order to aid the commander with targeting, planning the drafting of orders for nuclear strikes, and battle damage assessment (BDA) after a strike (pp. 16-17). Final target selection and prioritization is to be the responsibility of the area commander, advised by the chemical commander and the operations and intelligence staffs, in "a process as that used for attacks against ground targets" (p. 19). In an unresolved tension between centralization and decentralization, however, the doctrine elsewhere puts a premium on "decentralized command," arguing that subordinate commanders need to have the ability to use nuclear weapons in order to take advantage of "rapid changes" in a timely manner on a dispersed battlefield (pp. 42-43). In fact, emphasizing the need for a high tempo and flexibility in the attack for friendly formations (which may not be able to mass if, in turn, they want to avoid becoming a target of enemy nuclear strikes), decentralization is offered as a solution (pp. 83-84, 87), as long as the commander's intent is understood by subordinates (p. 88). The manual also views nuclear weapons as an economy of force measure in the defense, constituting in them-

selves a reserve which the commander can use to influence the battle, and thus obviating the need for maintaining actual units in the reserve for that purpose (p. 43).

INTELLIGENCE

Intelligence will have to accommodate the new demands imposed by nuclear weapons, but will continue to play a major role, particularly in targeting, and especially for target identification in a timely manner (pp. 5-6). Of course, the traditional essential elements of intelligence to be collected for purposes of targeting are seen as a continuing requirement, including the standard information on weather, terrain, the enemy's disposition (with a focus on the latter's reserves, armor, artillery, nuclear weapons and means of delivery, headquarters, lines of communication, and support infrastructure), and a need to revalidate targets before nuclear weapons are launched. However, in addition, more emphasis is now placed on the intelligence staff's evaluation, in combination with the chemical staff, the artillery, and units in the field, of targets in terms of the impact of their destruction on the enemy's combat effectiveness (pp. 6-9). In fact, in many ways so dominant will nuclear fires be that movement forward by one's forces will become really force reconnaissance (*istitla' bi-l-quwwa*), and specifically be equivalent of using one's forces to seek out appropriate targets to be hit by one's nuclear fires (p. 79). As part of the intelligence feedback process, BDA is to be undertaken within 20-30 minutes after a friendly nuclear blast (p. 18) and, following the BDA assessment, the commander can then decide whether to repeat a nuclear strike.

One new requirement of the nuclear environment, not unexpectedly, is for intelligence to provide estimates of the expected levels of fallout and from "danger of contamination by radiation to friendly units" from one's own nuclear weapons (p. 9). A particular concern is to predict before a friendly launch the level of what the manual terms "militarily-significant fallout," that is fallout which will hinder friendly units from maneuvering (p. 25). Conversely, the staff will need to determine the effect of enemy nuclear strikes on friendly facilities and defensive dispositions. To do so, information on air conditions, the situation at the expected ground-zero, and the size and elevation of the blast are to be processed (p. 25). After being subjected to a nuclear strike, similarly, damage assessments for friendly forces are to be prepared for the commander (p. 25).

SUSTAINMENT

The doctrine does not have much to say about sustainment. However, in the initial phase of an unlimited nuclear war, the manual assumes that logistics will be disrupted, as the traditional transportation network will be damaged. Resupply by air is suggested as an alternative but if that is not enough, units will have to be able to draw from reserve stocks of supplies (pp. 42, 44). Fallout from a blast, in particular, is seen as a potential obstacle to movement and resupply, and the staff will have to provide the commander with accurate and timely estimates of the likely level of fallout and of its impact (pp. 24-25). To restore combat effectiveness in the targeted units, preplanned damage-control measures and the insertion of reserves to compensate for casualties, or even the wholesale replacement of units, are to be undertaken "extremely rapidly" after an enemy attack (p. 24). Following an enemy attack, repair and reconstitution are to be undertaken "at the utmost speed" (p. 20). Units are to be designated beforehand to deal with damage control in friendly areas that are struck (p. 24).

MANEUVER

Although the manual posits that nuclear fires will be predominant over maneuver, it also suggests two options to maximize the benefits of nuclear fires on behalf of maneuver (p. 79). The first method involves the use of small highly mobile ground and heliborne units along a broad frontage, with a mission to destroy enemy strong-points by either using fires or by overrunning them. The second option is that of quickly massing forces for an attack, followed by a rapid dispersal after a successful attack, in order to minimize their vulnerability to strikes from enemy nuclear weapons. The attacker would have to use "the utmost speed to exploit the resulting positions arising from the movements of the enemy, who is seeking to achieve operational-level advantage" (p. 81). A significant premise of this doctrine is that nuclear war most likely will be limited, either because of agreed-upon limits or because of limited arsenals and a limited capacity to produce nuclear weapons (p. 39). This situation in itself will enhance the ability of units to maneuver in a traditional manner, although maneuver will now be subordinate to fires (p. 39). Terrain will retain its significance, but largely as a locus of observation and because of its role in dispersing or canalizing enemy forces, and thereby making them a better target for nuclear strikes (p. 43).

Traditional maneuver, such as turning movements or envelopment, is still preferred to frontal attacks in cases where "the number of nuclear weapons available is limited." However, frontal attacks may now also be possible with a large enough nuclear arsenal: "when the number of nuclear weapons available is sufficient to create a breach in the enemy position which will permit the mobile forces to pour in . . . maneuver by breakthrough is preferable over other forms of maneuver" (p. 84). One of the objects of a friendly attack is to maneuver an adversary into a position where he becomes more vulnerable to nuclear strikes. Specifically, "the fluid nuclear battle" may lead to both planned and unplanned breakthroughs, thereby forcing the enemy into a defensive position or strongpoint "where he can be destroyed by nuclear attacks" (p. 85). Nuclear weapons are even advised for use in mop-up operations, as in destroying pockets of remaining resistance (p. 89). Nuclear weapons are also to be considered as an alternative to chemical weapons, as a means to be used "for effect" (*li-l-ta'thir cala*) or "to immobilize" those defending a bridge which is to be seized in order to allow one's own forces to cross a river (p. 95). Deception is seen key as to the location of the planned attack (p. 85).

The nature of nuclear weapons, moreover, is seen as increasing the need for coordination between fires and maneuver, as well for control over both planning and execution (pp. 5-6). And, given the "intensity of effect" of nuclear weapons on the battlefield and the need to attack targets before they disappear, a communications capability able to deal with the high tempo in a fluid situation in which forces are highly dispersed becomes particularly important (p. 15).

FORCE PROTECTION

Force protection measures, as one might expect given the lethality of nuclear weapons, occupy a significant place in this doctrine. As the manual notes, a nuclear war will require enhanced attention to this concern, and defensive measures are to be given "the utmost importance," given the great impact that the enemy's nuclear weapons can have on one's own operations. Indeed, "when the number and size of the nuclear weapons used on the battlefield escalates," the potential for forces to maneuver may decrease, and the greatest

priority for one's own forces then becomes to just "survive," and later, if possible, to take advantage of one's own "nuclear superiority" (p. 36). Defensive measures to be taken include both provisions prior to an enemy attack to diminish one's vulnerability --such as including deception to complicate the enemy's target acquisition-- and post-attack damage-control measures (pp. 19-21).

The manual underlines the need to minimize friendly casualties, reminding command staffs to "ensure that all measures have been taken that will minimize the level of casualties and the extent of damage to our units from both enemy and friendly attacks" (p. 33). Measures suggested to reduce casualties and damage include dispersal, deception, concealment, training, deception, and early warning (p. 20). In particular, "complete coordination" and warning are preconditions for the use of nuclear munitions when there are friendly units on the flanks, so that the latter can take defensive measures (p. 11). Similarly, air forces are enjoined to coordinate with ground forces before launching nuclear strikes (p. 12). When nuclear munitions are to be delivered by air as "air support," the air staff is to prepare the plan, in coordination with the ground commander, who will decide what level of risk is acceptable to his units as a result of the strikes on enemy targets (pp. 10-11). Units in the field and the air forces are to receive warning of a nuclear strike, ordinarily from their own corps headquarters, but in cases where specific corridors have been designated for the use of airpower, no such warning is deemed necessary when nuclear strikes occur outside these corridors and presumably do not affect aircraft (p. 13).

Chemical observation posts are to determine the direction and magnitude of an enemy nuclear attack at ground-zero and to report to higher echelons, where the information is to be analyzed, preferably by the chemical staff element at each level, according to predetermined reporting procedures which the manual lays out (pp. 21-23). Such measures are seen as adequate for force protection and as sufficient to facilitate the employment of nuclear munitions. Given the importance of targeting, "the exertion of the utmost effort" is especially necessary in order to protect one's own reconnaissance assets which will be needed to in order to acquire intelligence for targeting (p. 44).

CONCLUSION

The principal conclusion from a study of this manual has to be that Iraq clearly has envisioned nuclear weapons as a warfighting tool. Not surprisingly, Iraq has sought to portray its weapons of mass destruction as a purely defensive asset. For example, spokesmen after the end of the Gulf War claimed in public that, at least as far as chemical weapons were concerned (and presumably equally so for nuclear weapons, although a public argument on this was still moot and politically dangerous), the intent for their use was purely one for deterrence and defense: "The political observer can see that Iraq, as proven during this war in which it faced the most vicious attack known to mankind . . . did not use chemical weapons even in the most critical situations . . . which shows that Iraq believes that chemical weapons are a deterrent and not for attacks or for aggression against anyone."¹⁴ Some scholars, too, have posited --based on the experience of the U.S. and the USSR during the Cold War-- that the spread of nuclear weapons to multiple countries would have a positive effect, leading to strategic nuclear deterrence --as more than one country would hold a symmetric capability-- and thereby decreasing the likelihood of even conventional war and enhancing regional stability.¹⁵ The basic assumption of this view has been that the incipient threat of nuclear war would cause countries to consider any type of major war as too dangerous and costly in light of the potential to escalate to an unthinkable nuclear holocaust. However, the doctrine studied here suggests that Iraqi thinking on the nuclear issue has been at odds with this assumption, given Iraq's focus on nuclear weapons as a theater asset and Baghdad's apparent consideration of a lower threshold for their use than had been the case for the U.S. or the USSR, at least in the later stages of the Cold War. Indeed, rather than remaining at a general descriptive level, in many instances the doctrine in this manual becomes prescriptive and spills over into detailed tactics, techniques, and procedures, with a very practical "how-to" focus, indicative of an expectation of a practical applicability of this doctrine in the not-too-distant future. In fact, formats are provided in the appendices to staffs in preparing nuclear fire plans, operational orders, and requests for fire support that highlight the very practical thrust of this manual. Since this doctrinal manual was not in the public domain, in no way can it be viewed as intended to be a conscious contribution by Iraq to strategic deterrence, in the sense that Iraq might have wanted potential adversaries to see the document as an indication of Baghdad's readiness to employ nuclear weapons and, therefore, to cause them to be more wary about confronting Iraq. In sum, to extrapolate the superpower experience in the Cold War, itself a conceptual development that was far from linear or ready-made, as a predictive model for Iraq or for the Middle East as a whole may be misleading, especially in light of the differences in strategic and political culture that may have an impact on how specific countries or leaders view a nuclear capability.

Of course, the document under study here is not a war plan - after all, Iraq did not have a nuclear capability at the time which it could consider for actual use in fighting a war. Nevertheless, the document provides insights into the thinking of the Iraqi Army leadership, and the fact that the latter believed the issue to be of sufficient importance and relevance to address it in a doctrinal publication, which implied an authorized viewpoint, is significant. As one would expect of a doctrinal publication, this manual was apparently intended for a relatively wide dissemination, as evident from its low level of security classification. Indeed, the intent of the manual, as noted in the frontispiece, is for it to be disseminated widely: "This pamphlet was published for the training of members of the armed forces, and it is incumbent on all of them to pay close attention to its principles." Ostensibly, the manual was meant for guidance in training and planning for forces in the field, albeit for a future time, and not meant as a close-hold document, such as a war plan might be. The format of the document in itself might suggest that in the opinion of those at top of the Iraqi military leadership a nuclear battlefield was something that would become quite probable and even something not to be avoided, given the assumed advantages it could provide. As official doctrine actually distributed to the Army, the perspectives in this manual can be viewed as a genuine reflection of the thinking within leadership circles, as it would make little sense to disseminate one doctrine to one's own troops while secreting another for internal use.

Moreover, the approach to the use of weapons of mass destruction in war as reflected in other Iraqi Army doctrinal and operational documents indicates that this manual was very much in the mainstream of Iraqi military thinking, rather than being an isolated academic think-piece, and the fact that the July 1988 version was already the third edition suggests that the Iraqis may have been thinking about this issue for some time. Indeed, an Iraqi doctrinal publication highlighting the operational use of weapons of mass destruction --including of a radiological capability-- existed at least by 1984.¹⁶

To be sure, the doctrine on nuclear war studied here was untested, and it is also questionable whether the Iraqi Army was capable of doing everything the manual prescribed even if a nuclear capability was acquired one day. For example, such actions as a passage of one's own lines (p. 84) or night attacks (p. 89), as posited by the manual, are difficult enough to do at any time, but to do so in a nuclear environment would be complicated indeed, and the level of the command and control or force protection required by this doctrine might have been well beyond the capabilities of the Iraqi Army. While such deficiencies might have prevented Iraq from exploiting its tactical nuclear weapons fully, the situation, if anything, might have been a cause of even greater concern because of potential errors and uncontrolled destruction.

All this is not to say that Iraq's use of nuclear weapons would be automatic nor unavoidable when and if it should acquire such a capability. As has been the case with chemical weapons, Iraq's use of nuclear weapons would be scenario-dependent and, indeed, Saddam's decisions in such areas as who would control the launching of nuclear weapons might well override specific elements contained in doctrine.¹⁷ That is, although Saddam had used chemical weapons on numerous occasions in the Iran-Iraq War and against the Iraqi Kurds, he did not use this capability during the Gulf War, most likely being deterred by factors such as the expected disproportionate retaliatory capability by the U.S. or Israel, the perceived operational difficulties of the Kuwait Theater of Operations, or the fear of personal pursuit that could have been sparked by such a decision.¹⁸

By the same token, one cannot assume a mirror-image evaluation by Iraq on whether and when to resort to nuclear weapons in the same way as might be the case with U.S. decisionmakers. First, the Iraqi view of nuclear deterrence may be at variance with Western assumptions. Significantly, indications are that Iraq believes that Israel's deterrence has been successful only because Israel has a nuclear monopoly, or as one Iraqi military observer noted: "[Israel's] strategy of deterrence depends. . . on not permitting any Arab development in this [nuclear] sphere."¹⁹ Indeed, according to a recent Iraqi statement, it is Israel's nuclear monopoly which prevents "neighboring and further-afield Arab countries from intervening in Palestine if the situation collapses as a result of the proclamation of a Palestinian state." The unstated corollary is that a nuclear balance would remove the obstacle which hinders Arab states from doing so. Indeed, the conclusion of the same study is that "It is clear from the preceding that the extent of the dangerous threat which the Zionist nuclear strategy represents for the Arabs is a matter which as a corollary mandates the necessity of preparing for that threat by developing the same military arsenal as [other] states in the region have. . . in order to confront the looming Zionist nuclear threat."²⁰

Moreover, Iraq's nuclear threshold, in fact, may be lower than desired, particularly in regional conflicts, based on its track record with using chemical weapons in the Iran-Iraq War. Perhaps equally disconcerting is the somewhat lackadaisical and matter-of-fact approach and perspective about a nuclear battlefield expressed in this manual, and what would seem to be an understatement of the potential destructiveness of nuclear weapons. Saddam, one can argue, is a pragmatist and anything but suicidal. However, many observers nevertheless might be justifiably uncomfortable with his proven willingness to have recourse to weapons of mass destruction on the battlefield under the appropriate circumstances and with his propensity to miscalculate, something that might be particularly possible in an arena such as that of nuclear weapons in which he would have had no real practical experience or reliable roadmap from other countries.

The perception by Iraq's neighbors that Saddam would countenance the use of nuclear weapons, moreover, could have a chilling effect on regional states' willingness to cooperate with the U.S., even if Saddam engaged in blatant aggression, not to speak of the effect it would have in encouraging other regional states to also pursue a similar capability. What is more, a substantial Iraqi nuclear arsenal and a readiness to consider using it could well give pause even to the U.S. itself about confronting Saddam. Given the limits on Iraq's ability to deliver nuclear strikes against U. S. territory for any foreseeable future, even "deterrence" would largely entail Iraq's use of nuclear weapons at the theater level against U.S. interests.²¹

At base, the manual studied here reflects doctrine that was several generations behind that in use at the time in the U.S. In some instances, there are internal contradictions and what one might argue are crude or simplistic judgments, and a sense of unjustified authoritative confidence characteristic of an illusory assumed mastery of new concepts and situations in an incomplete awareness of all relevant parameters. The U.S., too, had displayed a similar readiness to fight on a nuclear battlefield, but this was characteristic only of the 1950s, with President Eisenhower's "New Look" and the emphasis on atomic weapons and massive retaliation as a cost-effective means to provide for the national defense. Typically, and however reluctantly, the U.S. Army had then begun to reorganize itself --what came to be known as the "Pentomic Army"--with the specific intent of being able to fight on a nuclear battlefield.²² With the advent of the Kennedy Administration,

however, there was a rapid and pronounced shift away from an unpopular tactical nuclear focus in organization and doctrine and, while this aspect was retained as a possibility in subsequent doctrine, a clear distinction was made between nuclear and conventional war, with a focus on the latter.²³ Soviet thinking, on the contrary, continued to envision a nuclear battlefield throughout the 1960s and 1970s as a normal environment, and --not unlike the doctrine in this Iraqi manual-- emphasized the offensive, exploitation of nuclear weapons combined with conventional arms, surprise, tempo, and readiness in order to operate in a nuclear environment.²⁴ In particular, as two analysts noted in the late 1970s, in contrast to the West, "the Soviets have long regarded nuclear weapons as revolutionary for military operations and have sought to adapt this basic appreciation of the weapons and their range of effects into a 'scientifically' worked-out war-fighting and winning doctrine--on both the tactical-battlefield and strategic-exchange levels."²⁵ It was only in the 1980s, with the rise of Marshal Nikolai Ogarkov and others, who argued that battlefield nuclear weapons no longer made sense given the anticipated costs and potential alternative means, that Soviet views on de-emphasizing tactical nuclear weapons came more into line with those in the U.S.²⁶ In the event, by the late 1980s, when this Iraqi manual was published, the thinking upon which it was based had largely gone out of favor in both the U.S. and the USSR, and one cannot assume that the same sophistication and restraints as had developed over the years in the two superpowers would also have applied to Iraqi military decisionmakers responsible for this issue at the time or in the future.

The conceptual influence on this doctrine from other sources is not stated in the manual. Although the authors may well have studied Soviet doctrine in this area, British and U.S. manuals from the 1950s and 1960s would also have provided a similar grounding on thinking for the use of tactical nuclear weapons. In fact, distances in the drawings of notional schemes of maneuver found in the manual's appendices are designated in yards, rather than in meters, as one would expect if a Soviet source had been used.²⁷

Ultimately, were Iraqi discussions about the use of nuclear weapons merely theoretical musings or more practical considerations? That is, would Iraq actually have considered using nuclear weapons on the battlefield and did Baghdad believe it needed to think the issue through before acquiring the capability and being faced with the decision of what to do with nuclear weapons? Given the context when this doctrine was being developed, that is the Iran-Iraq War, which at times proved exceptionally frustrating for the Iraqi leadership, indications are that Saddam might well have decided to use nuclear weapons as soon as they became available. A former officer, who was a Lieutenant General and Chief of Staff of a corps in the Iraqi Army during the Iran-Iraq War, for his part, believes that Saddam would have used nuclear weapons against the Iranians: "Of course. Saddam would have used anything he had, including nuclear weapons. He was faced with a problem of Iranian numbers and was willing to use everything."²⁸

How much have the parameters of Iraqi thinking in this arena changed since the Gulf War? It is, of course, difficult to be categorical about military thinking in a closed and secretive system such as Saddam Hussein's Iraq, but if the country's efforts to preserve and develop its existing chemical and biological capabilities and continued efforts to acquire a nuclear capability in the intervening years are any indication of Saddam's priorities, then it is quite probable that Iraq's leadership continues to view nuclear weapons as a useful asset and probably one with applicability even to the battlefield.²⁹ Judging from continuing Iraqi perceptions of the utility of tactical nuclear weapons for Israel, in fact, it would

appear that Baghdad still views the feasibility and likelihood of a nuclear battlefield in a regional conflict as realistic.³⁰ Past, current, or impending measures to eliminate Iraq's weapons of mass destruction capability, of course, have prevented and are intended to prevent Saddam from acquiring a nuclear capability and only if these efforts are successful will Iraq's nuclear doctrine remain unfulfilled, as was the case at the time this manual was written, and the potential risk of a nuclear battlefield be avoided.

FOOTNOTES

- ¹ *Kurrasa: Al-istikhdam al-ta' bawi li-aslihat al-tadmīr al-shamīl; Al-mujallad al-thani; al-juz' al-thani; Usus istikhdam al-asliha al-nawawiya fi al-harb*, 3rd edition, (Baghdad: Ministry of Defense, July 1988). This was part of the regular Iraqi Army doctrinal publication series, and carried manual number 470. As is true of doctrinal publications in most countries of the world, there is no author identified, but only the approving authority: Staff Lieutenant General Nizar 'Abd al-Karim Faysal al-Khazraji, then Chief of Staff of the Iraqi Army. The original document is found in the now declassified documents of the Defense Intelligence Agency (DIA) Archives, file 561-1-11. All otherwise unattributed references in this study are to this manual. My sincere thanks to Michael Eisenstadt and Charles D. McKenna for their valuable comments on an initial draft of this study.
- ² According to an interview by Mu'add Fayyad with Husayn al-Shahristani, "'Alim dharra 'iraqi: tujad mansha'at nawawiya sirriya fi batin Jabal Himrin bi-l-'Iraq lam yak-tashifha al-mufattishun al-dawliyyun" [Iraqi Nuclear Scientist: There Are Secret Nuclear Facilities inside Jabal Himrin in Iraq, Which the International Inspectors Did Not Discover], *Al-Sharq al-awsat* (London), 15 April 2001, p. 3.
- ³ John Burns, "A Top Iraqi Aide Defies U.S. to Find Proof of Weapons," *New York Times*, 9 December 2002, p. A1.
- ⁴ David Kay, "Denial and Deception Practices of WMD Proliferators: Iraq and Beyond," *The Washington Quarterly*, Winter 1995, p. 85. In fact, according to another Iraqi nuclear scientist who later left the country, the Iraqi leadership sought to have at least one nuclear warhead to mount on a missile after Iraq's invasion of Kuwait in 1990, although this still would not have meant a theater-level capability. Khidhir Hamza with Jeff Stein, *Saddam's Bombmaker*, (New York: Scribner, 2000), pp. 239-240.
- ⁵ According to Hamza, Saddam's production goal was six devices per year, which would have provided a small but not inconsequential arsenal over time. *Op. cit.*, p. 333. David Kay, on the other hand, estimated that with a shift to centrifuge technology, the Iraqis had later set a goal of "20-plus" weapons a year. Lecture by David Kay at the Monterey Institute of International Studies, "Iraqi Inspections: Lessons Learned," 10 February 1993, online at URL: <http://cns.miis.edu/research/iraq/kay.htm>
- ⁶ For example, a typewritten text dated 14 July 1971, found in the files of the Iraqi Army's 29th Infantry Division, covered procedures and considerations for individual and unit force protection in case of a nuclear strike against Iraqi forces. DIA Archives, file 597-1-4. Later Iraqi Army manuals on unconventional weapons routinely also included defensive measures against nuclear weapons.

- ⁷ According to an article authored by "The Political Section" of the Iraqi Defense Ministry's magazine *Hurras al-watan* (Baghdad), "Al-amn al-qawmi wa-hisabat al-tafawwuq" [National Security and Calculations of Superiority], 22 April 1990, p. 8.
- ⁸ During the Gulf War crisis, there was public discussion in Iraq, as one would have expected, only about how to defend against nuclear weapons, often with a focus on basic civil defense measures reminiscent of the 1950s-60s in the U.S. See, for example, the interview by Nada Shawkat with a Civil Defense official, Fa'iz Fath Allah 'Abd al-Rahim, "Al-Asliha al-nawawiya wa-subul al-wiqaya min adrarha" [Nuclear Weapons and Means to Protect against Their Harmful Effects], *Al-Jumhuriya* (Baghdad), 12 August 1990, p. 9.
- ⁹ See for example, Iraqi journalist Sabri Hammadi, who ascribed aggressive intentions to Tehran as he fretted that the latter might acquire support for the development of nuclear weapons from the newly-independent Central Asian countries, asking rhetorically "Has the Iranian regime's mind weakened to the point that it has also forgotten its bitter and costly experience during the eight-year war?" "Iran... humma al-tasalluh wa-al-tamadud," [Iran... Fever of Arms Buildup and Expansion], *Al-Thawra* (Baghdad), 20 February 1992, p. 2.
- ¹⁰ The file consists of some loose pages taken from an undated pamphlet not otherwise identified except by a title *Manual for Survival in a Nuclear War* handwritten by an Iraqi lieutenant, DIA Archives, file 134-2-8. This publication provides practical survival measures while operating on the battlefield in a nuclear environment.
- ¹¹ *Bitāqa: Dalil al-ʿaysh li-tawāʿif ʿajalat al-qital al-mudarraʿa fi dhuruf al-tahdid bi-istikhdām al-asliha al-kutlawiyya (al-nawawiyya-al-ihyaʿiyya-al-kimawiyya)* [Card: Guide to Survival for Armored Combat Vehicle Units under Conditions of a Threat of the Use of Weapons of Mass Destruction (Nuclear, Biological, Chemical)], Chemical 1100, Office of the Chief of Staff of the Army, Directorate of the Chemical Branch, ([Baghdad]: Al-Matabiʿ al-ʿaskariyya, 1980), p. 1, DIA Archives, file 136-2-11. The fact that this card is found in a number of captured files indicates that it had been distributed widely.
- ¹² DIA Archives, file 657-1-2. Elsewhere in the same document, the terms "atmospheric" and "nuclear" are used as synonyms. Likewise, the Operations Staff of the 39th Infantry Brigade sent a list of defensive measures to its subordinate units, dated 31 August 1990, which included "The importance of dispersing units in order to protect against nuclear strikes." DIA Archives, file 135-5-1.
- ¹³ This is according to a letter from the Iraqi Ministry of Defense's Chemical Branch to the Directorate of Training, which was subsequently redirected to all field units, in response to the Republican Guard's request. In the letter, the Chemical Branch regrets the inability to provide such pills, while noting that radiation was not the only effect to fear from a nuclear attack, and suggesting instead that such measures as simple fortifications and gas masks could be more useful to fielded forces. The DIA Archives contain a copy of the letter, classified Secret, dated 17 September 1990, which was routed through the Iraqi Army's Third Corps and was resent by the latter's 39th Infantry Brigade to its own subordinate units on 21 November 1990, DIA Archives, file 135-12-012a.

- ¹⁴ 'Isa Ism'ail al-'Abbadi, "Al-Asliha al-kimawiya qina' amriki sahyuni li-l-haymana 'ala al-mintaqa" [Chemical Weapons Are an American-Zionist Mask for Hegemony over the Region], *Al-Jumhuriya*, 24 March 1991, p. 8.
- ¹⁵ For example, see Kenneth N. Waltz, "Toward Nuclear Peace," in Robert J. Art and Kenneth N. Waltz, ed., *The Use of Force; Military Power and International Politics*, 4th edition, (New York: Lanham, 1993), pp. 527-555; and Martin van Creveld, *Nuclear Proliferation and the Future of Conflict*, especially "Nuclear Weapons in the Middle East," (New York: The Free Press, 1993), pp. 97-153. This underlying assumption has been noticeably persistent, resurfacing in the more recent debate on policy toward Iraq, with the argument sometimes made that Iraq can be expected to behave like the USSR did with weapons of mass destruction, as in John J. Mearsheimer and Stephen M. Walt, *Can Saddam Be Contained? History Says Yes*, (Cambridge, MA: Belfer Center for Science and International Affairs, International Security Program *Occasional Paper*, November 2002), online at URL: <http://www.comw.org/qdr/fulltext/mearsheimer-walt.pdf>
- ¹⁶ *Kurrasa: Al-'Amaliyat al-kimawiya wa-l-ihya'iya wa-l-ish'a'iya* [Pamphlet: Chemical, Biological, and Radiological Operations], (Baghdad (?): Training Command, Chemical Corps Directorate, September 1984), classified as Restricted to the Armed Forces, DIA Archives, file 561-1-1. This manual, although a translation by Staff Colonel Samim Jalal 'Abd al-Latif from an unspecified foreign source, was nevertheless part of the Iraqi doctrinal publications library and therefore part of Iraqi doctrine. The original source was apparently from the Soviet Bloc, as measures used are in the metric system. This manual, too, was a practical guide on how to use weapons of mass destruction on the battlefield. In effect, Iraq has also pursued the ostensibly easier path of developing radiological weapons ("the dirty bomb") and reportedly tested a prototype; see Khidir Hamza, "The Iraqi Threat," Testimony, Senate Foreign Relations Committee, 31 July 2002. While this is not a nuclear weapon, this capability could nevertheless be considered as sharing some of the same lethal effects as nuclear weapons.
- ¹⁷ For example, during the early phases Gulf War, Saddam ensured that he would personally have control of initiating the use of chemical weapons, rather than delegating such authority to lower echelons. An order dated 20 September 1990, classified Top Secret, from the Commander of the 27th Infantry Division reminded subordinate units that "the use of the chemical effort will not occur except by order of the supreme commander (*al-qa'id al-'amm*)," citing an order sent by the office of the Chief of Staff of the Iraqi Army on 12 September 1990; DIA Archives, file 134-9-3. Elsewhere, the order clearly identifies the "supreme commander of the armed forces" in question as "Mr. President (may God protect him)," that is, Saddam. Presumably, the same order also went out to other units.
- ¹⁸ See Norman Cigar, "Chemical Weapons and the Gulf War: The Dog That Did Not Bark," *Studies in Conflict and Terrorism*, vol. 15, April-June 1992, pp. 145-155.
- ¹⁹ Staff Colonel Hazim 'Abd al-Qahhar al-Rawi, "Al-Tahaddi al-nawawi al-isra'ili: mafhum al-rad' al-nawawi al-isra'ili" [The Israeli Nuclear Challenge; The Israeli Concept of Nuclear Deterrence], *Al-Jumhuriya*, 21 July 1991, p. 3.

- ²⁰ According to an unsigned article in the "Studies" section of the official Iraqi *Babil Online* website, run by Saddam's son 'Udayy, "Al-Siyasa al-nawawiya al-sahyuniya" [Zionist Nuclear Policy], posted as of 6 January 2003, available online at URL: <http://www.iraq2000.com/online/derasat.htm>
- ²¹ Indeed, an editorial in the official *Babil* daily run by Saddam's son 'Udayy praised North Korea for pursuing a nuclear weapons capability in response to the U. S.'s alleged blackmail and attempts to impose its hegemony, and stressed the utility of such a capability even while recognizing that North Korea could not match the U. S.'s arsenal, Muhsin Khalil, "Al-Dars al-kuri" [The Korean Lesson], *Babil* (Baghdad), 1 January 2003, p. 1. Here, too, the effectiveness of a supposed deterrent would not require that Pyongyang be able to reach the continental U. S., but only that it threaten U.S. regional friends and interests.
- ²² See A. J. Bacevich, *The Pentomic Era; The U. S. Army between Korea and Vietnam*, (Washington, DC: National Defense University Press, 1986). In those early days, U. S. views about a nuclear battlefield were noticeably cavalier in their optimism and certainty, as reflected in nuclear exercises conducted and in opinions expressed by military and civilian leaders, *ibid.*, pp. 112-115.
- ²³ See William R. Van Cleave and S. T. Cohen, *Tactical Nuclear Weapons: An Examination of the Issues*. (New York: Crane, Russak, 1978), pp. 3-9. Indeed, a bias against recourse to nuclear fighting developed in U. S. doctrine over time. For example, despite the extensive exposition of nuclear issues in the Marine Corps' 1975 doctrinal publication in that field, the manual also noted that "The military officer who considers recommending the use of tactical nuclear weapons must evaluate the immediate impact of enemy retaliation on the local battlefield. Realization that it will instantly and irrevocably change the environment of his battlefield is certain to influence his recommendation." *FMFM 11-1: Nuclear, Chemical, and Defensive Biological Operations in the FMF*, (Washington, DC: Headquarters United States Marine Corps, 1975), p. 206. The degree of uncertainty admitted in FMFM 11-1 is also striking in comparison with the general confidence and certainty expressed in the Iraqi manual: "No one can speak with authority and certainty on what the first nuclear battle using NC [*i.e.*, nuclear and chemical] weapons will be like. . . The most certain fact about NC warfare is that the first battle will be filled with surprises as to its nature, conduct, and results." *ibid.*
- ²⁴ On these elements of Soviet tactical nuclear doctrine, see Van Cleave and Cohen, pp. 63-75.
- ²⁵ Van Cleave and Cohen, p. 72. An internal memorandum produced by the Soviet Main Intelligence Administration, dated 28 August 1964, reflected the same perspective as the doctrine; this document is reproduced and translated as *Soviet Study of the Conduct of War in Nuclear Conditions* by The Parallel History Project on NATO and the Warsaw Pact, online at URL: http://www.isn.ethz.ch/php/collections/coll_1.htm
- ²⁶ See Mary C. FitzGerald, "Marshal Ogarkov and the New Revolution in Soviet Military Affairs," *Defense Analysis*, vol. 3, March 1987, pp. 3-19. In the wake of the more recent deterioration of conventional capabilities in favor of the U.S., to be sure, Russia appears to have reemphasized its nuclear capability as a counter to what it sees as a U.S. technological overmatch.

- ²⁷ In fact, a textbook, *Al-Asliha al-kutlawiya; li-tullab al-kulliyya al-askariya* [*Weapons of Mass Destruction: For the Students of the Military College*] by Chemical Corps Major 'Adnan Jawad 'Ali, takes many of its illustrations, including those for protection against nuclear strikes, directly from the U. S. Army's FM 21-41, *Soldier's Handbook for Nuclear, Biological and Chemical Warfare*, (Washington, DC: Headquarters, Department of the Army, 19 December 1958). This Iraqi publication is undated, but is apparently from the 1980s, as it identifies Saddam as the Commander-in-Chief.
- ²⁸ Lieutenant General Fawzi al-Shammari in a discussion with the author, Quantico, Virginia, 21 October 2002.
- ²⁹ On Iraq's continuing efforts to acquire nuclear weapons, see the Central Intelligence Agency study *Iraq's Weapons of Mass Destruction* (Washington, DC: CIA, October 2002), pp. 5-6. Recently, David Kay testified before Congress that if Iraq had access to fissile material it could produce a crude nuclear device "in months, not years." "Statement of David A. Kay before the House Armed Services Committee, September 10, 2002," online at URL: <http://www.house.gov/hasc/openingstatementsandpressreleases/107thcongress/02-09-10kay.html> Iraqi leaders may have received inadvertent confirmation during the Gulf War of the rationality and utility of nuclear weapons when they understood from Secretary of State James Baker that the U.S. would consider using nuclear weapons to retaliate if Iraq used chemical weapons. According to Iraqi official Tariq Aziz, who represented Iraq at the Geneva meeting in January 1991 with Baker, "The man said that, you see, clearly to me in clear English." Interview with Tariq Aziz by Ted Koppel, *Nightline*, ABC-TV, 4 December 2002.
- ³⁰ Iraqis have long maintained that nuclear deterrence in Israel's case is only effective because of the latter's willingness to actually use nuclear weapons or, as one Iraqi officer put it, because of Israel's "resolve to use nuclear power," Al-Rawi, *op. cit.* More recently, the unsigned article on the *Babil Online* website cited above also assumed as a matter of fact that most of Israel's nuclear warheads were tactical and that Tel Aviv would have a very low threshold for their use. According to that study, "Zionist nuclear deterrence relies on the following basis: the readiness of the Zionist entity to choose the nuclear option at the beginning of the period of armed tensions preceding the outbreak of war" and that, specifically, Israel would have recourse to "operational theater weapons." *Op. cit.*

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