May 4, 1978

NEUTRON WEAPONS AND THE CREDIBILITY OF NATO DEFENSE

INTRODUCTION

Few military policy issues have engendered more sustained controversy than the United States' development of an enhanced radiation/reduced blast weapon, commonly referred to as the neutron bomb. As in any debate of the possible battlefield uses of nuclear arms, the discussion of the neutron weapon's strategic value has often been marked by an emotionalism which overshadows the political and military factors.

The neutron weapon is a miniaturized, low-yield hydrogen device, the product of fusion technology and an advanced guidance system. It derives its destructive power not from the heat and concussive force associated with conventional thermonuclear weapons, but from intense, though limited and short-lived, bursts of lethal radiation. Fitted to the short-range missiles and tactical nuclear artillery pieces currently deployed in Central Europe, (the Lance missile, for example) the neutron weapon would be especially effective against a blitzkrieg-type frontal attack by the Warsaw Pact on NATO defensive positions in West Germany. Such an assault would presumably be spearheaded by massed columns of Soviet tanks and armored vehicles, where the Pact enjoys comparative numerical advantages.

Proponents argue that introduction of the neutron "bomb" into NATO's operational inventory would bolster the credibility of the Alliance's tactical deterrent posture, since collateral damage to non-combatants and urban structures adjacent to the immediate battlefield area would be minimal. Critics contend that the very "controllability" of the weapon invites its early use against conventional attack, thus lowering the nuclear threshold and heightening the specter of retaliation and devastating escalation.

President Carter's indefinite deferral of a production decision has been made conditional upon both an explicit commitment by the

NATO European nations to deploy the weapon on their territories and to some unspecified reciprocal restraint by the Soviet Union in its own military programs affecting European security. Because of the apparently erratic, almost improvisational manner in which the decision to withhold production was made, significant questions have arisen about the cohesion and reliability of NATO's political consultative machinery and the efficacy of the President's own decision-making apparatus. The resultant effect on the long-term viability of Atlantic defense strategy is uncertain.

In dealing with the complex of assumptions involved, this report will analyze the neutron bomb controversy with reference to

1. the nature of the weapon system and its tactical efficiency relative to existing theater capabilities,

2. its implications for the Atlantic strategic doctrine of graduated deterrence, and

3. the concepts of political linkage and arms control.

THE NATURE OF THE ENHANCED RADIATION SYSTEM

The concept of an enhanced radiation weapon is neither of recent origin nor revolutionary in a strictly military sense. The several antecedents of the modern version of the system experienced progressive technological refinement and expanded deployment potentialities. Indeed, the principles of neutron radiation for military purposes were applied to the testing and development of the Sprint anti-ballistic missile system.

Despite presumptions about the logic of the escalatory sequence, the immediate and indiscriminate destruction inflicted by present-generation theater nuclear capabilities may largely obviate the possibility of rational thought competing with battlefield exigencies. As such, and given NATO's historical inability to define a persuasive operational mission for tactical nuclear forces, Pentagon strategists have long desired deployment of a weapon which could effectively deter or, if necessary, blunt a Pact armored thrust without causing incalculable damage to the area ostensibly being protected.

The properties which characterize the enhanced radiation device result from variations in applied quantum physics. Most conventional thermonuclear weapons are based on the fission process, in which isotopes of uranium or plutonium are compressed into a "critical mass" (or fissile core) and then split by heavy, sub-atomic particles called neutrons. The energized neutrons reproduce themselves in an explosive chain reaction. Each fission neutron reaction releases an average of three neutrons, yet these account for only a

minimal proportion of the weapon's total energy output. By far the largest share is transmitted through the thermal heat and blast of recoiling fragments of radioactive uranium and plutonium atoms, which comprise most of the weapon's fall-out.[1]

The fusion process, by contrast, requires the combination of isotopes of the lightest element, hydrogen (composed of deuterium and tritium), into slightly heavier atoms of helium, a reaction that must nonetheless be "triggered" by the tremendous temperatures and pressures generated by a fission explosion. According to Air Vice-Marshal Steward Menaul of the Royal United Services Institute:

> Fission weapons, at the instant of detonation, release about 5% of their energy in the form of prompt radiation. The rest is dispersed in the thermal pulse and blast effects. The new-type, low-yield weapons based on fusion release up to 80% of their energy in prompt radiation (high-energy neutrons and gamma rays) while blast effects are kept to a very low level. This characteristic is known as enhanced radiation, and the effect of a weapon of this kind would be approximately the same as from a fission weapon of ten times the yield.[2]

It is essentially the suppression of the blast/heat effects relative to similar or higher-yield fission weapons which magnifies the intensity of the neutron radiation emitted, a form of radiation extremely lethal to living tissue. Extensive radiobiological research has documented the damage to the mammalian central nervous system caused by variable exposure to neutron bombardment. The dosages of absorbed radiation (measured in rads) diminish in lethality as the distance from ground zero, where the confluence of destructive forces is maximized, increases. Those within a restricted "kill radius" of approximately one square mile (blast-induced structural damage would be confined to several hundred yards) would suffer either instantaneous death or phased degrees of fatal illness and functional incapacitation. The United States Army has established battlefield casualty criteria of absorbed neutron radiation levels ranging from 8,000 rads (high) to 650 rads (low) which correlate with graduated human responses. Contrary to some speculation, it seems unlikely that enemy troops so afflicted, even at the lower end of the "rad-band" spectrum, could effectively discharge combat operations.

Beyond the circumscribed radius, however, (and assuming the adoption of even moderate insulation measures) the radiation distribution is said to be negligible. Among other factors, the extent of radioactive contamination depends upon the detonation altitude of the weapon, with appropriate air bursts decreasing fall-out, since the atomic fireball would probably not touch the ground. Unlike thermonuclear fission weapons, moreover, the residual neutron radiation of fusion devices dissipates within hours, further reducing unintended damage and permitting friendly forces to

1. See The Los Angeles Times, July 13, 1977, p. 10

2. Cited in Current News, August 15, 1977, p. 11-F (Toronto Globe and Mail, August 8, 1977, p. 7.).

rapidly secure the affected battlefield. In an area like West Germany, with an average population density exceeding 650 persons per square mile, this fact is of no small consequence.

While it is beyond the scope of this study to detail the anticipated physical effects of different radiation absorption levels, the following table of comparative measurements is instructive. It indicates the radii attending the prompt radiation and blast effects of a neutron weapon and two fission nuclear devices as they correspond to recognized dosage levels and blast intensity levels (measured in overpressures of pounds/square inch, or psi). The manner in which these effects vary with weapon detonation altitudes is also noted.

RADII OF EFFECTS (FEET)

1. Burst Height = 500 feet

Weapon	*8000 rads*	*3000 rads*	*650 rads*	*6 psi*	*4 psi*	*3 psi*
1 KT ER	2500	3000	4000	1400	1800	2500
1 KT fission	1300	1600	2500	1700	2000	3000
10 KT fission	2500	3000	4000	3000	4000	5000

2. Burst Height = 1,500 feet

Weapon	*8000 rads*	*3000 rads*	*650 rads*	*6 psi*	*4 psi*	*3 psi*
1 KT ER	2500	3000	4000	0	800	1500
1 KT fission	0	1000	1900	700	1500	2000
10 KT fission	2500	3000	4000	4000	5000	7000

3. Burst Height = 3,000 feet

Weapon	*8000 rads*	*3000 rads*	*650 rads*	*6 psi*	*4 psi*	*3 psi*
1 KT ER	1000	2000	3500	0	0	0
1 KT fission	0	0	0	0	0	0
10 KT fission	1000	2000	3500	1700	3500	5000

Source: S. T. Cohen, "Enhanced Radiation Warheads: Setting the Record Straight," Strategic Review, Winter 1978, p. 12.

Among the most vehement objections raised in connection with the neutron weapon is that its deployment would represent a moral regression in tactical nuclear warfare. Opponents assert that the weapon is "inhuman" because it kills people but leaves inanimate objects, such as buildings, intact. The same could obviously be attributed to the effects of certain conventional armaments, such as rifle bullets. It is furthermore contended that if the United States proceeds with development of enhanced radiation weapons, such action would eviscerate President Carter's declared intention to seek arms reductions and eventually, the abolition of nuclear weapons.

The crescendo of opposition has transcended partisan political boundaries, however. A worldwide propaganda campaign, orchestrated by Moscow, has sought to portray the United States as attempting to destabilize an emerging theater nuclear balance by the introduction of a weapon system which, beyond obscuring the delineation between conventional and nuclear conflict, would be novel in its lethality. To this end, Soviet leader Leonid Brezhnev dispatched a bristling letter to NATO European heads of government last January, in which he decried the neutron weapon as archtypically capitalist, and vowed that its deployment would exacerbate East-West relations and leave the U.S.S.R. with little recourse but to adopt "appropriate countermeasures."

The argument must be evaluated in its total perspective. The neutron weapon's precision for anti-tank missions and its limited kill radius contrast notably with the indiscriminate lethal effects of present tactical nuclear systems, where the distinction between military and civilian targets (and hence casualties) would be effectively blurred. Furthermore, if one posits that the desired result of a viable military operation is the attainment of specified battlefield objectives with minimum collateral loss, then a weapon which significantly decreases civilian casualties would seem to have some claim to "humaneness" (assuming that the notion retains some meaning in nuclear warfare).

It is interesting to recall in this context that, unlike their NATO counterparts, Warsaw Pact forces are trained in the use of chemical and biological weapons, whose lethal effects on living cells require little elaboration. Also, despite reported improvements in accuracy and guidance techniques, the majority of Soviet tactical nuclear systems, as well as the approximately 700 medium and intermediate-range ballistic missiles targeted on Western Europe, are countervalue (i.e. population-oriented) in nature.

Regarding the propriety of the neutron weapon, the nuclear physicist S. T. Cohen, often referred to as the father of the enhanced radiation concept, offers this interpretation:

> All military weapons, more correctly their employment, are immoral. The recipient of the effects in the main have have been ordinary human beings who have had the misfortune to be on the other side. Regarding the choice of weapons to be used in a possible war, the immoralities having to do with differences in kill mechanisms logically must be assessed in the context of a vastly different immorality -- the great obscenity of war itself.
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> Most Americans feel that the greatest obscenity would be nuclear war. If fighting such a war would be humanly immoral to an extreme, then taking the means to deter its outbreak can only be construed as a moral imperative. It

is in this context that the development of any nuclear weapon must be judged. This includes the neutron bomb.[3]

ENHANCED RADIATION WEAPONS AND WESTERN DEFENSE: THE POLITICAL BACKGROUND

Funding authorization for the updated neutron weapon was contained in a FY 1978 public works appropriations bill, specifically that portion comprising the Energy Research and Development Administration's $1.2 billion budgetary request for weapons programs. Though the exact level of funding was classified, initial development appropriations were reliably estimated at $650 million over several years. Both the Senate and House passed their respective versions of the bill after defeating attempts to delete production funding for the enhanced radiation system. However, in addition to requiring an executive arms control impact statement (pursuant to PL 94-141) prior to releasing funds, amendments to the Senate bill included a proviso which would necessitate a concurrent resolution of Congress to block a Presidential production decision within 45 days of receiving the impact statement.[4]

The "neutron bomb" is actually designed as a tactical nuclear warhead for emplacement on the 70-mile range Lance surface-to-surface missile and as an artillery projectile for 8-inch and 155 mm howitzers (with 10-13 mile ranges). As the potentially most credible option in the United States' theater nuclear modernization program, the enhanced radiation weapon, with a one-kiloton yield, would replace a substantial fraction of the roughly 7,000 tactical nuclear devices now deployed in Central Europe, whose yields vary from ten to fifty kilotons. Projected on a ten-year basis, the estimated total cost of the replacement effort would be $2-4 billion. However, the continuing modernization of existing tactical systems will allow them to be fitted with either conventional nuclear, or neutron warheads.

The lead-time factor affecting initial deployment of the neutron weapon is anticipated to range from 18 to 30 months. Thus, the safeguard presumably represented by a production decision must account for the incremental strengthening of Soviet theater capabilities during that period.

The operational deficiencies of present tactical systems are apparent. For example, the 8-inch nuclear shells, many of which were deployed in the late 1950's, have very limited range and lack an effective internal security mechanism. Their complexity makes them slow to load and fire, thus casting doubts about their performance reliability under battle conditions. Appropriations request to upgrade tactical artillery systems were rebuffed by Congress in the early 1970's, however, pending introduction of

3. Quoted in Bernard Weinraub, "What Role for the Neutron Bomb?," The New York Times, July 17, 1977, p. E-4.

4. Congressional Quarterly, October 8, 1977, pp. 2151-52.

a more innovative design concept to accommodate a changing European political and military environment.

As noted previously, modifications of theater weapons embracing the enhanced radiation system have been theoretically possible, though not perhaps strategically feasible, for some time. In 1954, a crude neutron device was planned as a suitable projectile for the Army's 280 mm howitzer. Several factors intervened subsequently, however, and the program was cancelled. Similarly, consideration was given to deployment of a neutron weapon during the latter years of the Eisenhower Administration as well as during the Kennedy Administration, though the ultimate decision affecting European theater capabilities in the aftermath of successive Berlin crises involved an expansion of conventional ground forces. A prototype of the modern neutron weapon was test-fired in Nevada in 1963, yet the program remained dormant despite the efforts of military specialists to devise cost-effective alternatives to existing tactical nuclear forces.

THE TACTICAL NUCLEAR DILEMMA

Tactical nuclear weapons have long provoked ambivalent feelings on both sides of the Atlantic, with European governments uncertain as to how they would be employed for limited strikes in repelling an invasion by Soviet forces, or what the consequences of their use might be. Moreover, the precise nature of their symbolic "linkage" to strategic nuclear weapons as the ultimate guarantor against a NATO defeat has never been satisfactorily explained. "The basic idea is that a strategic nuclear response to Soviet aggression would be intuitively more plausible if tactical nuclear weapons had already been used and had failed to halt the Soviet attack."[5] United States officials have emphasized (though often less than persuasively to anxious Europeans) that NATO's use of tactical nuclear weapons would provide an unambiguous signal to Moscow that the Alliance was prepared to cross the qualitative "firebreak" between conventional and nuclear warfare to prevent a Soviet conquest of Western Europe.

But how could one resolve the dilemma or control the escalatory process in a rational manner, let alone anticipate the magnitude of devastation to the NATO territories being defended? Moreover, would the respective damage levels inflicted by tactical and strategic nuclear weapons actually be distinguishable to the victims?

In 1955, when nuclear deterrence was based on the precept of massive retaliation and conventional forces served a preeminently "trip-wire" function, NATO commanders conducted a simulated war exercise entitled Carte Blanche. According to the scenarios

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5. Congressional Quarterly, July 9, 1977, p. 1403.

developed, it was assumed that 335 nuclear weapons would be used within the first 48 hours of a conflict, and that 268 of them would strike West German territory. Immediate German casualties were estimated at 1.5 million dead and 3.5 million wounded.[6] (Other Pentagon studies conducted in the 1960's reportedly estimated that casualties in Western Europe resulting from such an exchange would exceed 100 million.) Such appalling findings, observed Henry Kissinger in Nuclear Weapons and Foreign Policy in 1957,

> . . . became a demonstration that the power of nuclear weapons inhibits their use unless there exists a doctrine which poses alternatives less stark than total devastation.[7]

The impetus for increasing acceptance of the enhanced radiation weapon as a realistic tactical option was provided by then-Secretary of Defense James Schlesinger's enunciation of a new strategic targeting doctrine in 1974 which entailed the notion of damage limitation. Schlesinger's thesis involved the development of a selective counterforce capability which would destroy military "point" targets while sparing urban population centers. Transposed upon the NATO environment, precision was to be substituted for the threat of mass annihilation as the most credible response to levels of aggression short of strategic thermonuclear exchange.

This revised concept was predicated upon several interrelated elements:

1. The momentum of the Soviet Union's unprecedented military growth across the spectrum of capabilities to a position of essential strategic equivalence with the United States, despite the supposed restraint induced by negotiated arms control measures.

2. The especially formidable array of Soviet conventional and theater nuclear forces opposing NATO, and the references made in Soviet military literature to the predominance of rapid, coordinated offensive attacks (the "combined arms concept") as the key to securing battlefield advantage. Based on an obviously reduced warning period, such attacks do not preclude, but rather envision, the introduction of nuclear weapons under appropriate circumstances.

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6. Ibid.

7. Cited in The St. Louis Post-Dispatch, August 1, 1977, p. 1.

THE MILITARY BALANCE IN CENTRAL EUROPE

	NATO	Warsaw Pact
Manpower	670,000	955,000
Main Battle Tanks	7,000	20,500
Tactical Aircraft	2,000	2,800
Tactical Nuclear Missiles	7,000	3,500
Artillery Pieces	2,700	10,000

Source: Newsweek, April 17, 1978, p. 37.

3. The general stagnancy (or perhaps obsolescence) of the NATO defense posture, including the progressive emasculation of the doctrine of graduated deterrence. Principally because of the gross disparity in counterpoised conventional forces, it was perceived that the credibility of the West's tactical military deterrent, as well as the political utility of theater nuclear weapons as symbolic of the American security commitment, had been seriously eroded.

4. The development of new technologies which have produced a modern generation of theater nuclear systems possessing capabilities for highly-accurate and low-yield deliveries. Improvements in accuracy, coupled with reductions in warhead payload, have made available to the North Atlantic Alliance weapons of great precision in target acquisition which simultaneously minimize blast-related collateral damage.[8]

V. STRATEGIC RAMIFICATIONS OF DEPLOYMENT OF THE NEUTRON WEAPON

In requesting production funding for the neutron weapon last year, President Carter stressed that

> Tactical nuclear weapons, including those for battlefield use, have strongly contributed to deterrence of conflict in Europe. I believe that we must retain the option they provide and modernize it.[9]

8. See Jacquelyn K. Davis and Robert L. Pfaltzgraff, Jr., Soviet Theater Strategy: Implications for NATO., (Washington, D.C.: United States Strategic Institute; USSI Report 78-1).

9. The Washington Star, July 13, 1977, p. 1.

The deterrent credibility of a weapon is linked to the probability of its application as circumstances warrant. Limited battlefield objectives demand less than total means, at least such that a reasonable degree of certitude exists that the means in question will be exercised selectively. Whether neutron weapons augment deterrent credibility depends on the advantages they possess for strengthening tactical war-fighting capabilities, since a potential adversary may be uncertain as to what constitutes permissible battlefield actions short of eliciting a problematic nuclear response, however limited.

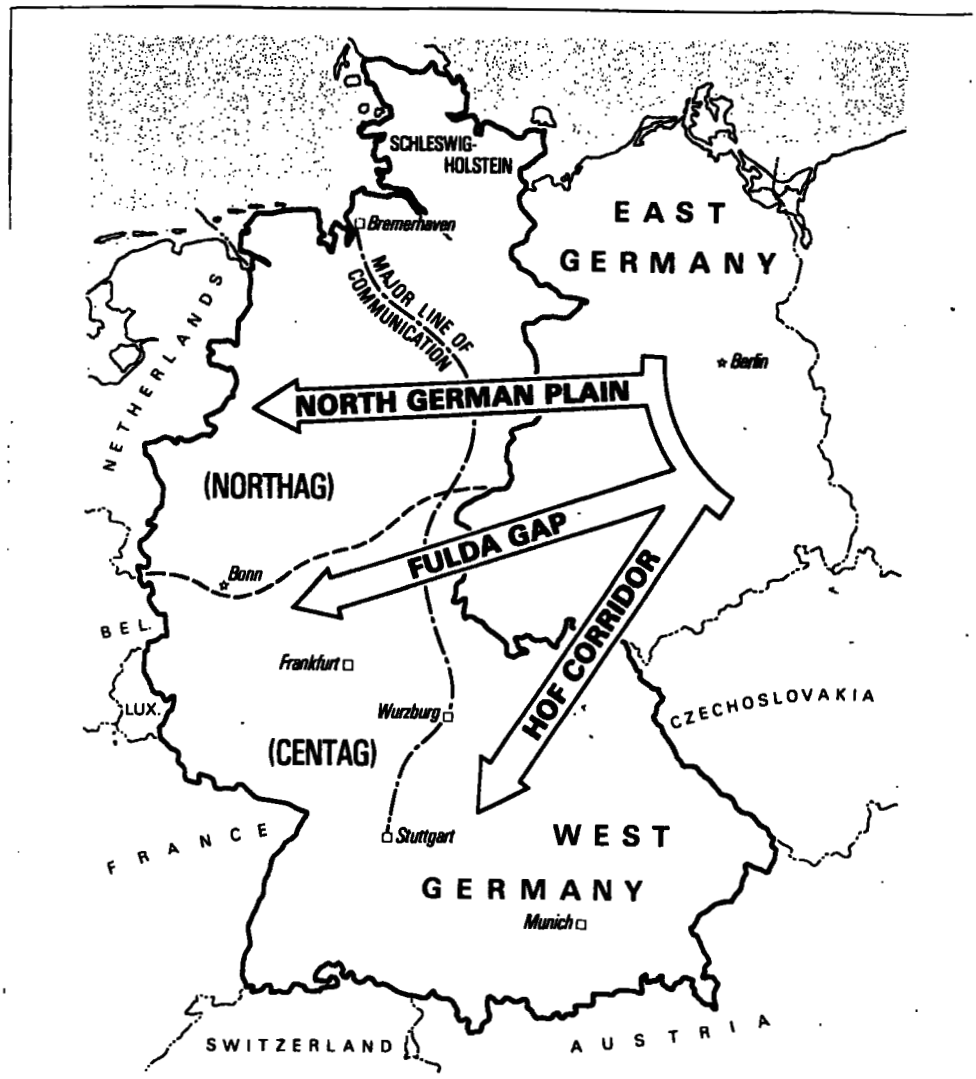
Since many tactical delivery systems are dual-capable, it is in NATO's strategic interest that conventional forces be upgraded in order to assure the flexibility and measured responses which graduated deterrence requires. Yet what appears to be Europe's tacit reliance on theater nuclear capabilities as the primary deterrent may reflect a corresponding downgrading of (or simply insufficient attention to) conventional forces for sustained combat during the initial stages of a conflict. The point is of more than academic interest relative to the potential deployment of the neutron weapon, since it affects the composition of military capabilities necessary for successful defense against incremental levels of aggression and determines the emphasis accorded the function of conventional units beyond that of political symbolism. Moreover, a tactical nuclear deterrent which promises indiscriminate damage becomes less credible if conventional defenses are perceived as only marginally relevant to the overall strategic concept.

The heart of Soviet military strategy in Central Europe involves multiple massed tank thrusts, supplemented by substantial firepower and with little advance warning, which would overrun NATO defenses before anything approaching ample Western mobilization could take place. Furthermore, the Soviet Union has developed tactics designed to limit the employability of U.S. theater nuclear capabilities by rapidly closing the gap between forward-stationed Pact armored units and the troops and civilian populations of NATO allies.

- The likeliest Warsaw Pact invasion routes, against which the effective disposition (or otherwise) of Allied forces must be evaluated, are shown in the map. (See p. 11)

In the event of a Pact breakthrough which could not be contained by conventional military means, the tactical responses could only be as flexible as disposable armaments permit. A NATO decision to introduce current-generation tactical nuclear weapons would necessarily carry with it the risk of unacceptable damage to the allied infrastructure, including civilians and property. Responses and escalation beyond the nuclear threshold are thus related as much to the manner in which weapons are used as to their size and technical characteristics (though the latter are of obvious importance in determining the feasibility of certain missions).[10] If

10. See John F. Scott, "Neutron Weapons and NATO Strategy, Parameters, November 1977, cited in Current News, November 1, 1977, pp. 5F-8F.



Source: Assessing the NATO/Warsaw Pact Military Balance (Congressional Budget Office, December 1977), p. xi.

[a]NORTHAG refers to Northern Army Group, an area of command including Belgian, British, Dutch and German forces, in addition to one newly-formed U.S. brigade.

[b]CENTAG refers to Central Army Group, an area of command including U.S., German, and Canadian forces.

the tactical nuclear response is sufficiently "manageable" for executing selective military operations, then the aggressor is faced with the dilemma of whether to escalate the conflict commensurate with the values attached to his own military objectives or retreat before the specter of unwanted destruction.

It is in light of these considerations that NATO strategists, in particular the seven-nation Nuclear Planning Group, must weigh the potential military and political utility of the neutron weapon. Designed primarily to neutralize Soviet preponderance in armor, the neutron weapon would appear to have several distinct advantages over the larger, less accurate tactical systems.

In the first place, Soviet front-line tanks such as the latest-model T-72, have been hardened to withstand blast overpressures up to 65 psi. Tactical weapons which rely on a combination of blast and heat for their destructive impact would be less certain of registering substantial "kills" against massed tank formations, while high-energy neutrons would easily penetrate the tanks' protective steel and immobilize the armored force by incapacitating the tank crews. Data presently available indicate that neutron radiation against troops in tanks is approximately 20-30 percent less than the effective lethal radius against troops in the open. It has been reported that the U.S.S.R. is some years away from developing an effective armored resistance to neutron radiation.

Furthermore, variations in Soviet tactical planning to reduce the vulnerability of tank crews to neutron bombardment might occasion dispersal of tank columns. The normal requirement to increase the defensive yield of nuclear forces to accommodate the change would be unnecessary, however, since the unintended effect of such a move would be to make the individual tank units easier targets for the conventional, precision-guided anti-tank weapons already stockpiled in NATO inventories. These include laser-directed "smart" bombs and wire-guided missiles such as the TOW.

Considering the priority attached to effective concealment of forces in a nuclear battlefield environment, target acquisition and engagement of forward Pact armored units constitutes the principal tactical defensive problem. As such, many situations are conceivable where NATO forces, lacking accurate target information, would be unable to respond with low-yield, discriminate defensive fire.[11] The substitution of larger-yield weapons for attacking suspected enemy concentrations would increase substantially the collateral damaged produced by the attack, even if the engagement was waged at some distance from urban areas. Where the battle is proximate to a metropolitan center, enhanced radiation weapons assume an almost unique advantage. As mentioned earlier, by raising the detonation altitude to the appropriate level, it becomes possible (via bursts of radiation) to counterattack effectively those forces occupying an area while minimizing collateral damage and radioactive wastes. According to Dr. Cohen:

> To the extent that enhanced radiation weapons can divorce the military from the collateral damage effects,

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11. For an in-depth study of the battlefield applications of neutron weapons, see S. T. Cohen, "Enhanced Radiation Warheads: Setting the Record Straight," Strategic Review, Winter 1978, pp. 9-17.

> a new vista for tactical warfare emerges which would seem to have a substantially more desirable image than either nuclear fission or conventional explosives can provide.[12]

Beyond the limited battlefield missions for which neutron weapons would be deployed, higher-yield fission tactical nuclear devices would be held in reserve, should an aggressor consider escalation a feasible option. The innate "controllability" of the neutron weapon represents a significant new variable in a potential adversary's strategic calculations. By so doing, and assessed in conjunction with existing tactical forces, the credibility of the tactical deterrent would appear to be enhanced. "The neutron," notes analyst Uwe Nehrlich of West Germany's Foundation for Science and Politics, "made conventional defense more credible and nuclear-battlefield support less suicidal."[13]

The argument over whether the neutron weapon's deployment would facilitate premature recourse to "limited" nuclear responses, with the attendant risks of uncontrolled escalation, must therefore be measured against plausible alternatives. It would appear that proponents of this argument consider the only "useful" nuclear weapons to be those which are so indiscriminately destructive that the nation possessing them will be effectively deterred from introducing them in a conflict (except under circumstances of desperation). If an adversary shares the perception that, despite rhetoric to the contrary, the concept of self-deterrence is operative, then the leverage he can exercise in light of superior conventional forces becomes more pronounced while the penalties to be anticipated beyond a certain level of conflict (now somewhat more precisely defined) correspondingly diminish in credibility.

Without the intermediate war-fighting posture potentially afforded by deployment of the neutron weapon (and its implications for tactical deterrent credibility), one is led to wonder whether an American President, upon whose authorization the use of nuclear weapons rests, would acquiesce in the face of a possible conventional defeat because of the greater fear of unleashing a devastating counter-assault. Depending on the targets envisaged, and the extent to which military intentions could be effectively communicated, the residual knowledge that the Soviets could undertake equally destructive retaliatory strikes might further inhibit the use of larger-yield tactical nuclear devices for "limited" battlefield missions.

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12. Ibid., p. 13.

13. Newsweek, April 17, 1978, p. 37.

THE NEUTRON WEAPON DECISION: THE NOTION OF POLITICAL LINKAGE

President Carter's decision to defer production of the neutron weapon appears to have temporarily moderated the trans-Atlantic political discord which accompanied it. The controversy was partly attributable to Mr. Carter's personal misgivings about the "morality" of the system, the thrust of Administration policy regarding nuclear proliferation, and the question as to whether a production authorization would have been appropriate just prior to the convening of the United Nations Special Session on Disarmament.

Though a consensus apparently existed among military advisors on both sides of the Atlantic concerning the weapon's strategic necessity, the domestic political fall-out threatening some European leaders facing sizable constituencies hostile to deployment of the weapon on their national territories was perhaps insufficiently appreciated. The disagreement over whether a production decision should precede an Allied deployment commitment, or vice versa, likewise contributed to the overall impression of vacillation, with an allegedly ambivalent compromise underscoring the absence of effective political communication on a critical issue.

Among the more intriguing aspects was the linkage established between the neutron weapon's ultimate disposition and the direction and pace of certain Soviet military programs, notably the continued deployment of the powerful SS-20 IRBM (whose target coverage includes all of Western Europe), and the increase in tank and infantry strength in Central Europe. The Soviet Union has made explicit, however, its opposition to the United States attempt to "gain concessions in other unrelated matters," indicating the non-negotiability of "those measures (designed) to strengthen Soviet defense facilities."[14] One by-product of the propaganda campaign waged against development of the neutron weapon has been Soviet insistence on the desirability of a mutual renunciation of the system.

Prudent linkage diplomacy demands that the objective sought be proportional in value to the bargaining risk undertaken. Though its potentialities as a system for offensive strike missions have perhaps not been fully explored, the neutron weapon is principally defensive in nature. The U.S.S.R. would presumably have no compelling reason to produce the system for operational purposes. The threat to do so is predicated upon an acutely-felt need to induce the United States to unilaterally suspend development of a technologically advanced system which could partially offset certain Soviet advantages in deployed theater military power.

The Administration, already criticized for having offered "pre-emptive" concessions on promising military technologies in an effort to solicit reciprocal Soviet restraint, must consider the ramifications of what might be perceived as yet another gratuitous sacrifice, particularly if no substantive response is

14. Soviet World Outlook, (Center for Advanced International Studies: University of Miami), April 15, 1978, p. 2.

forthcoming. The bargaining value of a neutron production decision therefore relates both to possible Soviet arms control initiatives and the scope of current and past military deployments. Otherwise the linkage tactic is of dubious merit, and the prospects for meaningful negotiations involving a comparable quid pro quo are markedly reduced. (It is generally assumed that the manner in which the issue is resolved would at best "marginally" affect the atmosphere of superpower strategic arms control talks).

The current indecision, especially if seen as influenced unduly by Soviet blandishments, may occasion a further diminution of the credibility of the American security guarantee, possibly impelling individual Allied states to undertake separate military initiatives. (The reported French test-firing of a neutron device in the South Pacific bears some relevance when analyzed from this perspective.)

Deployment of the weapon would more readily substantiate President Carter's determination, as expressed in North Carolina on March 17, to adopt such measures as are necessary to effectively counter-balance the "ominous" Soviet military build-up. A neutron weapon whose deployment is problematic would seem to retain little effective currency as a "bargaining chip." If the Soviets are as fretful of the weapon as public propaganda and private consultations would indicate, a production authorization, allowing for a fixed time frame wherein a response would be anticipated, would confront the U.S.S.R. with the opportunity to devise a credible linkage offer of its own.

CONCLUSION

In a system where issues of considerable technical complexity and emotional content are measured in terms of political impact as well as substantive value, the manner in which strategic questions are analyzed can influence the kinds of decisions reached. The case of the neutron weapon is illustrative of the duality underlying such decisions in an era when warfare has combined mass participation with sophisticated technology.

The Administration's handling of this sensitive political issue was not designed to inspire the mutual confidence and cooperation which a viable trans-Atlantic partnership must demonstrate. Abetted in part by conflicting news interpretations of President Carter's intentions, European confusion over the decision is really little more than a reflection of American domestic doubts about the internal coordination of the Administration's decision-making machinery.

The political utility of the neutron weapon for potential bargaining purposes in an arms control forum may be marginal. Indeed, the credibility of the linkage was undermined by the Soviet Union's refusal to consider proposals for reductions in those offensive

force systems against which the neutron weapon would be deployed. A vacuous pledge to refrain from producing the neutron system itself could hardly be construed as a comparable counter-concession.

As such, the ultimate production decision concerning the neutron weapon should be based primarily on an assessment of the objective military realities which would justify its deployment. Given the contemporary aggregate balance of forces in Central Europe, and taking account of qualitative differentials, deployment of the neutron weapon would provide NATO with an incremental capacity for sustained combat beyond the conventional level of aggression.

Moreover, alternatives to deployment of the neutron weapon for purposes of maintaining a credible military balance in Europe are unclear. Presumably, alternatives would entail supporting an extraordinarily expensive and controversial increase in American conventional forces and equipment in Western Europe to offset the Soviet effort. With due consideration of the lead-time factor as well as the momentum of Soviet weapons deployments incorporating advanced technologies, this aspect must be soberly addressed by opponents of the neutron system who nonetheless question the adequacy of NATO's overall defense posture.

By vastly reducing the anticipated collateral damage in a nuclear battlefield environment, the neutron weapon is particularly useful for precision counterattacks against Soviet armored assaults in a way unmatched by current-generation tactical nuclear systems. Coupled with high performance reliability, the low yields and related properties of enhanced radiation weapons would permit selective applications of military power and would strengthen the credibility of theater nuclear capabilities. As such, the flexible response which ostensibly underwrites Atlantic defense strategy could more readily accommodate a specific operational role for nuclear systems designed for limited tactical missions.

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