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**THE KING'S SILVER BULLET--IS
THERE STILL A NEED?**

**A Monograph
by
Major Keith D. Gordon
Field Artillery**



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**School of Advanced Military Studies
United States Army Command and General Staff College
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Major Keith D. Gordon
Field Artillery

School of Advanced Military Studies
U.S. Army Command and General Staff College
Fort Leavenworth, Kansas

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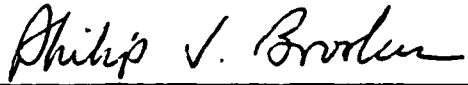
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Approved by: 

Colonel Julian M. Campbell, M.S. Monograph Director



Colonel L. D. Holder, MA Director, School of
Advanced Military
Studies



Philip J. Brookes, Ph.D. Director, Graduate
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ABSTRACT

THE KING'S SILVER BULLET--IS THERE STILL A NEED?
by Major Keith D. Gordon. USA. '48 pages.

The purpose of this paper is to consider whether or not a need still exists for Artillery Fired Atomic Projectiles (AFAPs). Many opinions exist concerning this question. The range of opinions extend from staunch support for AFAPs to complete rejection.

This paper attempts to sift through these various arguments to provide a solution to the problem. The process begins with the establishment of a framework for evaluation of the arguments. The combination of a short review of the rationale for the original placement of nuclear weapons in Europe, a summary of AFAPs and launch vehicles currently available to the potential adversaries, a description of the effects achieved through use of AFAPs, and a short discussion of the considerations and conditions required for use by the US and USSR comprise that framework.

This is followed by the presentation and comparison of the arguments which support and oppose a continued role for AFAPs. Through this process the author concludes that there is a continued need for AFAPs and recommends that NATO maintain its stockpile in Europe for contingency use until such time as there exists a conventional system which provides similar capabilities for deterrence and destruction.

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I. Introduction

As the pace of technological advancement continues to accelerate, the question arises as to whether or not NATO needs to possess and plan for the use of artillery fired atomic projectiles (AFAPs). Whereas some supporters may simply state, "We have them; let's keep them.", there are more compelling reasons to insure that such weapons remain in NATO's stockpile. This paper proposes to compare the arguments for and against such weapons to show why such a conclusion is justified.

Such a comparison would appear to be simple since the range of responses to this question extend from hearty support to avid rejection. The singular difficulty experienced in making such a comparison is that both supporters and opponents appear to base portions of their arguments on the same set of data. Though the author offers his opinion with regards to the validity of the respective interpretations, the responsibility is left to the reader to determine which interpretation is correct.

As a prelude to the comparison, it is beneficial to establish a framework to assist in judging the relative merit of the countervailing arguments. The first step is to review the rationale for the initial placement and continued maintenance of AFAPs in Europe. A subsequent look at the arsenals currently available to the potential participants on a European battlefield, followed by a discussion of the Soviet/Warsaw Pact and United States/NATO considerations for the use of these weapons provides the remainder of the framework. With this

preliminary work accomplished, the presentation and comparison of the supporting and opposing arguments follow and lead directly to the conclusion that there is a continued need for AFAPs and to the recommendation that such weapons should be retained in Europe for contingency use.

While recognizing that not everyone will agree with the conclusion reached in this paper, it is also apparent that those who must eventually decide the future of AFAPs will not have an easy task before them. The peace and freedom that have existed since the end of the second World War may very well rest on their decision.

II. Why Nuclear Weapons in Europe?

In an effort to find a means to counter the ever-growing Soviet threat, NATO faced a requirement to choose between several defensive options. The options included establishing a purely conventional defense or establishing a defense based on a suitable mix of conventional forces and relatively cheaper nuclear weapons. Although several governments (including the U.S.) initially considered a defense based solely on nuclear weapons to be feasible, reality soon dictated that such a defense was clearly unworkable and posed no real solution to the problem of maintaining world peace. Based on consideration of the existing world situation, the decision to establish a defense based on a mix of conventional and nuclear forces therefore appeared to be the only rational conclusion.

Foremost among the considerations were budgetary constraints. Although some NATO ministers argued against adopting the

nuclear/conventional mix. they recognized that the member nations of NATO were ill prepared to finance the conventional buildup required to meet the threat posed by the growing Soviet war machine.¹ The United States' position was clearly reflected in President Eisenhower's declaration, "It would be impossible for the United States to maintain the military commitments which it now sustains around the world...did we not possess atomic weapons and the will to use them when necessary."²

The introduction of short range nuclear weapons into Europe in the 1950's recognized the reality of this situation and the fact that few Europeans were then prepared to fight another long conventional war, successful or not.³ Nuclear weapons held the promise of keeping any future war short.

In a potential war, such weapons in Europe would serve as a nuclear "tripwire" bisecting West Germany. Any Communist forces crossing the Inter-German Border (IGB) would evoke response by the full armed might of the Western Alliance, to include nuclear weapons. Over the years, the existence of this "wire" sustained the European belief that their continued peace and security lay in a conventional force that was strong enough to last a few days, but weak enough to indicate to the Soviet Union that any attack on the West might provoke a nuclear retaliation by the United States.⁴

Although some NATO leaders began to question the validity of the threat to use nuclear weapons in retaliation for a conventional attack, the relatively low cost of nuclear weapons continued to make them more attractive than the more credible but more costly conventional forces.⁵ The prospect of raising taxes

or cutting into social programs deeply enough to buy the extra conventional insurance against Soviet aggression was flatly unacceptable.

As noted, though, the question of whether or not these weapons would be used in retaliation for Soviet aggression continued to surface. With the passage of time the certainty of the response diminished. Whereas then Deputy SACEUR, Field Marshal Montgomery, had declared in 1956 after the introduction of tactical nuclear weapons into Europe that these weapons would be used if NATO were attacked, President Kennedy expressed concern as early as 1961 that such weapons would only lead to escalation and holocaust. United States policy subsequently recognized a shift to avoid their use. President Nixon later added that "Sole reliance upon early resort to nuclear weapons would leave us no option between capitulation and all out mutual destruction."⁶

In the ensuing years, the search for other options has been guided by several prime considerations. However strong the desire to rid Europe of the nuclear specter, NATO leaders recognize that marginal military advantages have value, even in peacetime. They are also aware that the Soviets believe in and practice for nuclear warfighting. And, in light of demographic projections, they cannot ignore the need to minimize NATO's own losses in any future war. Finally, NATO's political and military leaders hope that the world's superpowers will retain sufficient control to terminate a war prior to total destruction.⁷

What has become of increasing concern to NATO in seeking other options is the recognition that the USSR appears to have a significant advantage in fielding reserve forces to sustain a conventional attack upon Western Europe. Whereas NATO has the initial advantage in ready forces on the ground, the USSR has the advantage after D+10 in moving reserve forces into theater. The imbalance is not even partially resolved until after D+30. Thus, the period from D+10 until D+30 represents a critical period for all of NATO.⁸ If the USSR can mass enough forces for a breakthrough during that timeframe, NATO may have no other option but to resort to the use of its nuclear arsenal.

Hence, the dilemma for NATO persists. How does one go about removing the threat of nuclear destruction but still provide for the defense of freedom in an increasingly expensive and threatening environment? In its efforts to resolve this dilemma, NATO, as a result of the Montebello decision of 1983, has taken steps to reduce the size of its nuclear arsenal while upgrading its quality. Efforts to improve the survivability of the stockpile are ongoing. Critics and supporters alike can only judge the correctness of these efforts by the number of years of peace that follow and whether or not such weapons are ever used to help restore peace once it has been lost.

III. The Stockpile

Having briefly addressed some of the reasons for the initial placement and subsequent maintenance of nuclear weapons in Europe, a look at what exists in the respective US and Soviet arsenals in the way of warheads and launchers is in order.

Combining this data with the effects achievable from the use of these weapons presents a clear picture of the tremendous destructive potential available to either side in a European conflict.

Depending on the source used, anywhere from 1010 to 1300 AFAPs comprised of various 155mm and 203mm models exist for use by US and NATO forces.⁹ NATO, to include the US, possesses approximately 3900 nuclear certified howitzers. The potential for rapid expenditure supports the NATO assumption that any period of nuclear exchange could be of short duration.¹⁰

Maximum ranges are currently listed as 14-30 km and 16-29 km for the 155mm and 203mm weapons, respectively.¹¹ The combination of improved range and accuracy provide reduced collateral damage and an ability to use AFAPs in closer proximity to one's own troops with increased safety. As the author will demonstrate later, both supporters and opponents of AFAPs cite the resulting operational flexibility in support of their respective arguments.

The Soviet/Warsaw Pact forces have approximately 5850 nuclear certified artillery weapons. This number includes approximately 1800 152mm self-propelled guns, 150 203mm gun/howitzers, and 200 240mm mortars. The range for the 152mm, which comprises about 60% of the certified howitzer inventory, is estimated at 27 km.¹²

The tables on the following two pages are extracts from NATO's Central Region Forces and summarize the weapons and launchers available to NATO and the Warsaw Pact.¹³

Table 1. AFAPs/Launcher Status

Type Launcher	First year de- ployed	Range (km)	CEP (m)	Launcher total 7/87	Warhead details/ comments
UNITED STATES					
M-110A1/A2 203mm SP how	1977/79 1981	21.6 29	170 200-	1046	W-33. .5 or 10KT. changeable W-79. .5 1.2KT selectable
M-109 155mm SP (3 models)	1963	18/ 24/ 30	n.a.	2440	W-48. .1KT (W-82 to replace)
M-198 155mm how	1979	14	n.a.	1000	W-48. .1KT (W-82 to replace)
NATO (excluding US)					
M-110 203mm SP how	1962	16.8	170	397	W-33. .5 or 10KT changeable
M-109 155mm SP	1964	18	n.a.	1695	W-48. up to 2KT*

*NATO variation

Table 2. AFAPs/Launcher Status

Type Launcher	First year de- ployed	Range (km)	CEP (m)	Launcher total 7/87	Warhead details/ comments
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USSR

M-1976 152mm towed gun	1978	27	n.a.	e1500	?2-5KT
2S5 152mm SP gun	1980	27	n.a.	e2100	2-5KT
D-20 152mm towed gun/how	1955	17.4	n.a.	e2000	2KT
2S3 152mm SP how	1972	27	n.a.	3500+	Sub-KT-5KT
2S7 203mm SP gun	1975	18+	e200	e200	2-5KT
2S4 240mm SP mor	1975	12.7	n.a.	e200	Nuc

WARSAW PACT (excluding USSR)

M-55/D-20 152mm towed gun/how	n.a.	17.4	n.a.	e270	2KT
2S3 152mm SP how	?1980	27	-	140	Sub-KT-5KT

e=estimated

The apparent discrepancy in the number of available launchers results from the fact that most artillery pieces are dual capable. They can fire nuclear or conventional projectiles but are not necessarily certified to perform the nuclear mission. This is particularly true for NATO artillery weapons since launchers and individual firing units must meet stringent requirements to be certified as nuclear capable. The proliferation of dual capable artillery exacerbates the difficulty of targeting nuclear capable units.

The warheads designated for use by U.S. and NATO artillery units are stored in or in close proximity to ammunition sites which existed at the end of World War II. The fact that the locations of these sites are well known to the Warsaw Pact makes them vulnerable to a preemptive strike by Warsaw Pact forces. Many NATO military planners have recognized this vulnerability and have begun taking steps in the past few years to resolve the problem.

The majority of Soviet warheads are maintained in storage sites located inside the Soviet border for security purposes. Not only does this provide a degree of sanctuary for these weapons, but there is also some speculation that this security is also effective against other Pact members. Military planners cannot totally discount such a consideration for the statement it makes about the potential lack of trust between the Soviet Union and subordinate Pact members concerning nuclear weapons.

IV. The Effects on Target

Such an impressive array of warheads and launchers leads one to ask what these weapons are designed to achieve. Volumes of information detailing specific effects are available, covering everything from the medical aspects of nuclear warfare to the effects on command and control (C²). A brief review of these effects should suffice to convince even the casual reader of the significant role that such weapons would play if employed on a future battlefield.

The three components of damage from a nuclear detonation are blast, heat, and radiation. In actuality, the greatest damage is done by the blast and heat from the explosion, not by the radiation.¹⁴

Considering the yields of the artillery weapons concerned, the detonation of a 1KT device would kill or disable the following personnel and equipment:

<u>Effect</u>	<u>Equipment</u>	<u>Personnel</u>	<u>Exposed Personnel</u>
Blast and heat	Tanks at 60m	Crews at 120m	Personnel at 140-200m
Radiation			Personnel at 800-1200m

This data correlates to a .6 to a 1.0KT device rendering a dispersed or moving reinforced battalion 25% ineffective.¹⁵

Moving up the yield scale, a 5KT weapon used against that same battalion would render it 70% ineffective. From another perspective, three out of four battalions massed for an attack would be unable to perform that mission. It is not too difficult to imagine the impact these results would have on an operation.¹⁶

Nor are these the only effects recognized from the detonation. Electromagnetic Pulse (EMP), tree blowdown, casualties inflicted over an extended timeframe, creation of obstacles, channelization, and disruption of reconstitution efforts are among the additional effects which commanders need to consider in planning for operations in a nuclear environment.¹⁷ Each one of the effects listed has potential to help or hinder forces conducting offensive or defensive operations.

V. Soviet Considerations and Conditions for Use

The great destructive potential of these weapons requires a review of the respective conditions required for use by the Soviet Union/Warsaw Pact and the US/NATO forces. For ease of discussion the considerations will usually be referred to as Soviet or US only. Where differences exist between these two powers and other member nations of their respective alliances, such differences will be noted.

At the same time, one should not assume that possession has given rise to a similarity in the conditions required for use by the opposing alliances. In fact, significant differences exist.

As might be expected, the differences between the Soviets and their fellow Pact members are minimal due to the nature of the alliance. Not only are the weapons maintained under Soviet control within the borders of the Soviet Union, but the policy for use also originates from the Soviet government. This leaves little room for differences to develop.

The Soviets consider all nuclear weapons to be part of their

warfighting capability. They do not see these weapons as an adjunct to deterrence¹⁸, nor do they consider them to be a part of the fire support system.¹⁹ On the contrary, the Soviets give these weapons a unique and decisive role in maneuver warfare equal to that of troop and fire support units.²⁰ With these weapons the Soviets expect to focus their "military superiority" to intimidate and paralyze Western leaders and thus neutralize the US/NATO nuclear capability. This, in turn, will permit the Soviets to force smaller states to acquiesce to whatever the Soviets desire.²¹

What adds substance to this vision is the Soviet recognition of the lack of NATO unity on the use of nuclear weapons. The Soviets identify only two specific situations which might precipitate NATO's use of such weapons: anticipation of a Soviet breakthrough or in retaliation for Soviet use. The Soviet assessment of the NATO political process results in their assumption that a Blitzkrieg-type offensive could successfully overrun and consolidate control over significant portions of Western Europe prior to NATO's vote to authorize use.²² Such Soviet success might then result in NATO's capitulation rather than the authorization required for these weapons to be used to assist in regaining lost territory. The Soviets would play on the fear of some NATO ministers that such weapons might then only succeed in destroying the lands and territories that they were intended to liberate.

The question that really exists for the West, though, is whether or not the Soviets intend to use nuclear weapons as their publications suggest, or if they will attempt to keep a war conventional to avoid the problems they foresee and are presently unable to control. Some Soviet writings indicate that their leaders may prefer a conventional war for these very reasons.²³

Of particular concern to the Soviets is that, for all their studies, they are still unsure of their ability to manage a full scale theater nuclear war.²⁴ And as the number of nuclear strikes increases, a number of irresolvable uncertainties arise to frustrate their planning. As a simple example, a unit commander would have to determine whether or not to hug the enemy force to preclude additional nuclear strikes, knowing that he risked higher conventional losses in doing so.

As a result of problems such as this, the Soviets' historical data base becomes less relevant. In the end the efficiency of any large scale operations is seen to break down as command, control, and communications (C³) are denigrated by the decimation of units and reserves, the collapse of rear area logistics, and the creation of zones of radiation.²⁵

The greatest concern, of course, is the problem of escalation. Once the nuclear threshold has been crossed, it may prove impossible to restrict usage to the battlefield.²⁶

In spite of these problems, there is no real evidence that the Soviets are firmly committed to keeping a war conventional. On the contrary, much of Soviet writing on the subject indicates that they have no intention of respecting a nuclear threshold. They seek only to identify the best time to use nuclear weapons

in support of their offensive and will transition at that point.²⁷

As noted earlier, one of the situations which the Soviets recognize may prompt NATO to authorize nuclear weapons to be used is to stop a Soviet breakthrough. Hence, in sensing their own breakthrough and that NATO may be preparing to cross the nuclear threshold to prevent it, the Soviets could be expected to consider that as a good time to transition and to conduct a preemptory strike.²⁸

Accomplishment of the mission is the primary concern in their decision to remain conventional or to transition to the nuclear realm. A major factor in their decision process is whether or not they can achieve the proper correlation of forces to ensure continued advances and a short war without escalation.²⁹ If that cannot be obtained without the use of nuclear weapons, the objective will then be to use them to achieve surprise, to disrupt political and military control, to destroy enemy nuclear forces and troop formations, for self defense, and/or to maintain the initiative of their offensive.³⁰

Actual Soviet response to a NATO first strike is a little more difficult to predict. The Soviets do not have a high regard for limited use since they do not believe limited use will do anything to alter the course of the war.³¹ Hence, the Soviets expect NATO to use its nuclear weapons to achieve decisive effects. Likewise, if the Soviets use nuclear weapons to preempt or in retaliation, they will also seek decisive effects.

Similarly, the counterforce/countervalue target oriented

approaches of the US find no place in Soviet policy.³² Any planned use is couched strictly in terms of mission accomplishment, and surprise and decisiveness are the key words in the accomplishment of that mission.

Possible Soviet reaction to NATO first use includes several options. An immediate, massive response is not necessarily the prime option. If not in position to make the transition, the Soviets may postpone a response while preparing a massive retaliatory strike. They may also launch an immediate strike of similar size to buy time to prepare such a massive response.³³ Misinformation to cover their intentions in any case is certainly not out of the question.

However, it is also not out of the question that they may not respond at all. If the NATO strike is insufficient to alter a favorable correlation of forces or to cause the Soviets to forsake their purposes in entering the war altogether, the Soviets may just ignore it and continue the attack. In their history, the Soviets have learned that the loss of forces, resources, and territory are not fatal as long as the political authority and sufficient military forces remain to continue the offensive or to launch a counter-offensive.³⁴ By responding in such manner, they may be able to achieve their purposes without risking further escalation.

The final response could be the immediate, massive retaliatory strike first mentioned. Recognizing this as the ultimate, logical end to the war, the Soviets might consider such a response totally rational and proceed to this stage just to end

the escalating cycle of strike and retaliation.³⁵ Of course, one cannot rule out an irrational response in such circumstances.

In all of this, NATO's nuclear strike forces would be the primary target for preemption and retaliation. Recognizing the destructive power of these weapons, the Soviets intend to destroy as many of NATO's nuclear systems as early in any future war as possible. To accomplish this the Soviets expect their own Theater Nuclear Forces (TNF) to deter a NATO nuclear strike while their conventional and unconventional forces seek out NATO's nuclear assets for destruction. To this end the Soviets will conduct air strikes against NATO's nuclear forces at the expense of air support to their own ground forces.³⁶ The intent of this extensive effort is at least to wear down NATO's ability to alter the tempo of the Soviet strategic offensive later.³⁷

If transition to the nuclear level is warranted, the Soviets expect the decisive role to be played by nuclear missiles due to the higher ranges and yields provided.³⁸ Accuracy is less important.

This fact doesn't mean that AFAPs have no role to play. They provide the Soviets with the same operational flexibility that NATO possesses in its arsenal. Whether in retaliation or to maintain the momentum of the offensive, Soviet doctrine calls for their initial strike to be made throughout the depth of the enemy's defenses.³⁹ Regardless of yield and range considerations, this translates to extensive Soviet use of AFAPs. When considering the effects discussed in Section IV, any

Soviet use of AFAPs has the potential to seriously degrade NATO frontline units. NATO can ill afford to ignore this potential.

Soviet doctrine, plans, and training for nuclear war have also resulted in streamlined procedures for transition to the use of its nuclear weapons. With regard to AFAPs, the Soviet nuclear firing units have no other support missions. These units are surveyed in, dug in, and camouflaged.⁴⁰ Dedicated communication nets and contingency use plans combine to provide a capability to minimize, if not to eliminate, transition time.⁴¹ Although initial release authority remains at the highest level of government, the possibility that subsequent release authorization may rest with the Soviet front commander⁴² further streamlines Soviet procedures. This delegation of release authority may also indicate that NATO units should expect Soviet use of AFAPs.

NATO's nuclear assets, delivery units, and control centers within battlefield range of Soviet AFAPs will be high priority targets. As mentioned earlier, the Soviets will attempt to take these forces out conventionally. But any risk to the Soviet offensive may incite their resort to nuclear weapons.

The Soviets recognize that nuclear weapons have the potential to alter the tempo, the course, and outcome of a conflict like no other class of weaponry⁴³. This understanding is the foundation of all their considerations for nuclear weapons use. If they enter a war with the intention of winning, then they may be expected to use all the weapons in their vast arsenal to do so.

VI. US Considerations and Conditions for Use

The main difference between the US and Soviet approaches is that the US seeks to detect enemy use and then react, whereas the Soviets seek to anticipate enemy use in order to preempt.⁴⁴ This appears to preclude first use for the NATO alliance. Although the US maintains that first use is situational and cannot be ruled out, efforts to persuade the US and NATO to adopt a no first use policy could effectively lock the requirement in concrete and prevent a timely response to Soviet aggression.

A greater problem associated with a No First Use policy for NATO is that from a military standpoint, NATO lacks strategic depth. With only 500 kilometers separating the Inter-German Border and the English Channel, NATO does not have the luxury of trading space for time.⁴⁵ Fortunately, there has been no requirement to verify this shortcoming.

If war does come, many analysts assume it will be a short one, probably lasting no more than sixty or ninety days. That was the same prediction offered as the world marched off to war in 1914.⁴⁶ The rationale for this conclusion has changed little since then.

At the outset of a future war, NATO would enjoy a superiority in ready theater forces up to D+10. Afterward, the Warsaw Pact's ability to mobilize for war and move reserve units into theater would cause the superiority to swing. This period of Pact superiority would last until D+30, during which time the Pact would not be able to achieve the 3:1 relative combat ratio surmised to be required for a successful attack.⁴⁷

But NATO recognizes that the period from D+10 to D+30 is

critical to its ability to mount a credible defense and mobilize sufficient reserves to prevent a Pact breakthrough. It is during this period that NATO may be required to resort to the use of nuclear weapons to prevent collapse of its defense.

Consideration of this and other problems evoked the comment from the former SACEUR, General Bernard Rodgers, that it could be but a matter of days before he would be required to seek authority for the use of these weapons.⁴⁸ The reserve problem becomes even more severe as NATO approaches the end of this century when the respective pools of draftable personnel show a 15% increase for the Pact but a 12% decrease for NATO.⁴⁹

The personnel problem is only one of the considerations for use of nuclear weapons. As armies have become more mechanized, there exists less time to acquire and engage targets. The number of immobile and slow-moving targets has declined. Although acquisition and engagement times have decreased dramatically, the increase in the number and speed of self-propelled vehicles has resulted in less time to engage and destroy moving enemy vehicles. Both the Soviets and the West have drawn the same conclusion: it is necessary to put down more rounds on the target in less time.⁵⁰

NATO and the Warsaw Pact have expended extensive effort and monies to develop more accurate and potent conventional weapon systems to solve this problem. The Multiple Rocket Launcher System (MLRS) is an example of of these efforts. But the US/NATO and the Soviets/Warsaw Pact have not forsaken attempts to find a solution to this problem in other areas. Doctrinally, the Soviets have responded to this occurrence by increasing the size

of the unit of fire to a battalion. NATO's doctrinal response is the Follow-on Forces Attack (FOFA)⁵¹, similar to but not the same as the US's AirLand Battle doctrine.

Serious but not insurmountable problems exist for both NATO and the US in their responses. The deep attack options are vague. Existing conventional weapons lack the required range, lethality, and survivability to ensure success on the battlefield.

Nuclear weapons are the only existing weapons which cannot be defended against and which may provide the capability to degrade or stop a Soviet breakthrough. NATO's contingency plans for use of its nuclear weapons in this role enjoy wide support, although their use may never occur as a result of disunity among NATO ministers on the conditions required for use.⁵²

A recent addition to this lack of unity over conditions for use is the emergence of a desire by some members of NATO to ensure that such weapons are used on the enemy's territory and against his urban centers instead of on NATO's soil.⁵³ In this regard, Bonn prefers longer-ranged weapons to overcome its fears that only the two Germanies will suffer the consequences of nuclear weapons use. The US prefers short range weapons to keep a NATO response at a low level.

The objective in resorting to use of these weapons would not be to reverse NATO's misfortunes, but to end the war on terms acceptable to NATO.⁵⁴ Just what it is that constitutes favorable terms remains an additional area of contention.

But in spite of this disharmony, many Europeans and Americans alike accredit the absence of war in Europe to the presence of nuclear weapons there. These weapons have provided the means necessary to deter war and to ensure that no Western European territory has been forfeit. AFAPs have been part of that deterrent force since their introduction into Europe.

But even with the lack of space to trade previously mentioned, NATO recognizes that nuclear weapons may not be required to counter all acts of aggression upon its territory. Only a major act of aggression aimed at acquiring control over parts of Western Europe may provide sufficient impetus to evoke a nuclear response from NATO.⁵⁵

In order to be of continued deterrent value, though, NATO realizes that the Soviets must be convinced that NATO will use its nuclear weapons if sufficient need arises. The Soviets must realize that they cannot achieve their goals by aggression and will be defeated if they try.⁵⁶ If the Soviets perceive a continuing disregard for the utility of AFAPs, then the value of these weapons in deterring such behavior will decrease still farther.

For the most part, though, nuclear weapons, to include AFAPs, enjoy strong support among NATO ministers and military planners for their role in deterring war.⁵⁷ It is the contingency plans for the use of such weapons if deterrence fails which causes the greatest disharmony among the allies. Although all are aware of the role that AFAPs could play in blocking a Soviet penetration or in retaliation for a Soviet preemptive strike, complete unison

for the use of AFAPs in this role is non-existent.

Some of the disunity is over the lack of specificity concerning conditions required to warrant use authorization. Further, any decision to permit use requires unanimous approval. Based on the decision that it is better to lose units than risk all-out nuclear war, release is keyed to control rather than responsiveness. Military considerations are subsequently submerged in procedure and politics.⁵⁸ The assessment of the problems within the NATO decision process supports the Soviet assumption that an attack on Western Europe might be successful and concluded without NATO ever approving the use of nuclear weapons.⁵⁹

This disunity may also prove to be the eventual cause of the destruction of many of NATO's nuclear weapons in their storage sites while units await the order for dispersal. Caught between the risk of escalating a crisis to a new level and the need to be prepared for the worst⁶⁰, some ministers in NATO may choose to risk the very survival of their nation by delaying the authority to disperse weapon stocks.

Some of the NATO ministers also apparently fail to consider the impact that any delay in dispersal authorization may have on the survivability of the support units and assembly teams which are later required to secure, transport, and assemble the weapons for use. Since many NATO units have little depth in personnel trained to perform these missions, such delay may result in some NATO units being incapable of conducting their nuclear mission once use is authorized.

As a result of these problems, what passes for policy or doctrine for use is actually only a description of the conditions which enable or prevent the use of these weapons.⁶¹ What does exist as doctrine tends to center on the technical aspects of waging nuclear war. Technical aspects include, but are not limited to preparation of nuclear fires, targeting, reduction of collateral damage, target analysis, and assembly procedures.

Unfortunately, present doctrine inadequately addresses the tactical employment issues.⁶² Reconstitution, logistics, maneuver, and C² in a nuclear environment are among the issues which doctrine identifies but does little to resolve. As a result, training demonstrates a serious lack of nuclear orientation. Major exercises assess the technical requirements, but the tactical considerations are seldom addressed. Given the known problems of reconstitution, logistics, C², *et al* in a conventional scenario, one can only wonder if the problems in a nuclear scenario are too difficult to address.

Whatever the case may be, AFAPs receive minimal attention. Even in artillery manuals, one is hard pressed to find anything more extensive concerning AFAPs than a description of their limited suitability for use anywhere other than in the immediate battlefield area. AFAPs are "most useful in support of forces in contact and where it is important to minimize collateral damage and ensure troop safety."⁶³ The manuals go on to identify potential AFAP targets such as Air Defense Artillery units, missile launchers, and control nodes. But, overall, tactical requirements are largely ignored.

These same shortcomings result in a lack of understanding among Army officers of the role that AFAPs may play in a future conflict. Liddell Hart once noted, "In theory, these small yield weapons offer a better chance of confining nuclear actions to the battle zone, and thus limiting its scale and scope of destructiveness--to the benefit of humanity and the preservation of civilization."⁶⁴ But failure to adequately understand all the implications of use of AFAPs only serves to degrade the opportunity to achieve this limiting capability.

This lack of understanding also degrades the flexibility AFAPs provide. The full flexibility can only be achieved through proper doctrine and training. Any inadequacy in these areas which results in delay or hesitation on the part of NATO's political or military leaders may invite escalation just as surely as the actual use of AFAPs.

The problem is even more compounded in NATO by the profusion of economic, political, social, and cultural considerations which influence any decision. The inability of NATO to speak with one voice concerning nuclear weapons is one of the main reasons for the lack of comprehensive policy and doctrine for the employment of AFAPs. The severe consequences of being ill-prepared to use nuclear weapons, particularly AFAPs, should warrant greater effort on the part of NATO to resolve the doctrinal problems. Failure to do so may prevent the use of AFAPs as an escalatory measure and force early escalation to the strategic level.

With such difficulties to contend with, the potential for these weapons to have an impact on future events indeed looks grim. That should not prevent continued effort to resolve the

problems. Eventual solutions may secure peace and freedom for many generations to come.

VII. The Case for AFAPs

Much of the discussion to this point has concerned nuclear weapons in general, recognizing that AFAPs represent only a small portion of the destructive power available to the world's powers. Many specific arguments arise when AFAPs are addressed separately from other types of nuclear weaponry. This section and the one that follows address these arguments.

Modern AFAPs possess characteristics which make them preferable to other types of nuclear weapons and to many conventional weapons. Included among these characteristics are increased range, lethality, responsiveness, safety for one's own troops, and improved C².

Because of their pinpoint accuracy, AFAPs are preferred to unguided rockets and missiles.⁶⁵ Their smaller yields mean that they can be employed in closer proximity to one's own troops with less risk.

The combination of accuracy and small yield also serve to reduce collateral damage. This provides a significant increase in operational flexibility for the using commander. Included among the advantages which accrue to the using commander are an increase in the variety of targets which may be attacked and the ease in changing targets, especially since there are always enough targets but never enough AFAPs. Nor can one ignore the ability to attack mobile or widely separated targets resulting

from the increased range and responsiveness⁶⁶

And, as noted in Section III, the proliferation of delivery vehicles increases the target acquisition problems for the Soviets. Considered together with ongoing efforts to harden the weapons and their containers, AFAPs may possess sufficient survivability to pose a threat to the Soviets for a significant period of time despite Soviet efforts to locate and destroy these assets. Thus, the deterrent value of AFAPs is enhanced as long as the Soviets perceive that the will to use them still exists.

Perhaps the greatest value of AFAPs rest in their ability to obliterate an enemy in a single shot⁶⁷ and, thereby, to alter significantly the tempo of an offensive. The Soviets recognize this special ability. Accordingly, they expect their own theater nuclear weapons to deter NATO use while their conventional forces exert special effort to seek out and destroy NATO's nuclear assets.⁶⁸

The "bonus" effects ascribed earlier to the use of nuclear weapons are also inherent in the use of AFAPs. To reiterate, these include EMP effects, tree blowdown and the formation of obstacles to movement and maneuver, channelization of attacking forces, disruption of reconstitution efforts, and the impact of casualties over an extended period.⁶⁹

As a final point, no one is capable of accurately predicting the cybernetic or moral impact on enemy and friendly soldiers as these soldiers ponder future nuclear attacks or the possibility of escalation and the use of nuclear weapons on the folks back home. It is not within the scope of this paper to ascertain the

impact that nuclear weapons use may have in these circumstances. That is left to the decision makers to discuss. But they cannot afford to ignore these issues.

Taken altogether, the considerations for use of AFAP to deter war or to halt a Soviet breakthrough are very persuasive. The considerations should not be taken at face value due to the momentous impact their use entails.

VIII. The Case Against AFAPs

Surprisingly, many of the arguments against the use of AFAPs are based on a simple difference of opinion on whether the weapons' characteristics are positive or negative. One is reminded in trying to sort out the varying positions held by the supporters and opponents of AFAPs, of the story of the seven blind men being asked to describe an elephant after having felt it. Each had touched the same animal but had come away with a different image of the beast. That the opposing viewpoints concerning AFAPs seem to have evolved under similar circumstances should become readily apparent as these counter-arguments are presented.

Several of the shortcomings used as arguments against the use of AFAPs have been presented previously. Of specific concern to opponents of AFAPs is the lack of unity and of comprehensive policy and doctrine for their use within NATO.

In addition to the causes of this shortcoming discussed in Section VII, the unanimity required to change any document which binds the member nations of NATO to action is extremely difficult to achieve. Cultural, political, social, budgetary, and demographic concerns all influence the way these documents are

worded.⁷⁰ Consequently, requirements often resemble vague generalities which are open to the interpretation of individual member nations.

The risk involved is that commanders may not adequately address the conditions which warrant the use of AFAPs. Consequently, the ministers may be unwilling to authorize use. This, in turn, makes the AFAPs likely targets for preemption during the ensuing delay, in which case they would be unavailable for use.⁷¹ Or worse, the fear of preemption might incite early use to prevent loss. Either way, there is no need for such weapons.

On the other hand, opponents of AFAPs also point out that more specific policies and doctrine may send the wrong signal to the Soviets. As a result, the Soviets may determine that NATO is locked into the use of AFAPs without consideration of the situation. Facing such a challenge, the Soviets might then consider a preemptory strike at the opening of their attack to be a necessity instead of an option. Again, the AFAPs will not be available for use.

Opining that neither general nor specific policies resolve the dilemma for NATO, the easiest solution becomes removal of the weapons from Europe since they are unlikely to be available in either situation. The logic is very simple.

The second argument against AFAPs concerns the very characteristics which supporters of AFAPs see as strengths: the small yield and improved range, accuracy, responsiveness, and C². Because of their small yield and limited range, AFAPs are incapable of hitting hard enough or deep enough to convey NATO's

intent for using them?⁷² Opponents contend that public data does not show that AFAPs can stop a Soviet penetration and force peace negotiations.⁷³

Opponents also warn that a discrete first user would be overwhelmed by a massive enemy counterstrike.⁷⁴ Clausewitzian concepts enter the discussion for opponents and supporters alike!

And with improvements made in responsiveness, accuracy, and C², NATO now has a more streamlined, more usable nuclear capability.⁷⁵ Even more cause for a preemptive strike exists. When added to a revulsion against the use of nuclear weapons on NATO's own territory, the only logical conclusion is that AFAPs are destabilizing and should be removed from Europe.

Of similar concern is the fear of escalation which also exists for members of NATO. Since thresholds are easily blurred and opponents perceive tactical exchanges to be difficult to control once release is granted, AFAPs represent an unnecessary risk of escalation.⁷⁶

As an alternative to AFAPs, opponents support reliance upon Western military technology to provide a conventional solution. At present, the pace of technological change is fast surpassing the ability of men to imagine suitable uses for the products thereof.⁷⁷ In contrast, the Soviets will be hard pressed to keep up with ongoing developments in the West.

Examples of the types of developments which may be considered as replacements for AFAPs include smart weapons, Fuel Air Explosives (FAE), the Army Tactical Missile System (ATACMS), directed energy weapons (DEW), Advanced Conventional Munitions

(ACM), and other emerging post nuclear technologies.⁷⁸

Such alternative technologies offer solutions to the problems of depth and the extensive quantities of conventional ammunition presently required to achieve the required effects on target. NATO and Soviet military experts recognize that rapid advances in conventional weapons technology have brought such weapons, in terms of destructive potential, to the effectiveness of weapons of mass destruction.⁷⁹

Furthermore, opponents point out that such technology will reduce conventional loads, extend shelf life, and have no use restraints.⁸⁰ The offering is tempting. But as with the arguments presented in behalf of AFAPs, the ones presented in opposition to them should not be accepted at face value either. It is necessary to compare the cases to arrive at a judgement on which case is the stronger of the two.

IX. The Comparison of the Cases

The basic argument for there being no utility for AFAPs appears to evolve from a fear of massive retaliation in kind. This revulsion to use of nuclear weapons on NATO's territory can hardly be any greater than that resulting from contemplation of the damage that would occur in a modern conventional war.⁸¹

Nor does the fact that escalation represents an unwanted situation for all concerned parties immediately indicate that AFAPs have no value. In actuality, AFAPs may represent the last meaningful escalatory measure prior to an all out nuclear war.⁸² To remove AFAPs from Europe and then be forced to launch a strategic strike due to the lack of a suitable tactical nuclear

response is just as impractical as responding with a tactical nuclear strike because of an inadequate conventional defense.⁹³

To add that AFAPs have had little or no deterrent effect is preposterous. The Soviet concern for the impact that AFAPs would have on the tempo of their strategic offensive indicates a more significant value than naysayers are willing to admit. It is hard to ignore the almost instantaneous fear that developed in Western Europe during the Reykjavik summit meeting between Reagan and Gorbachev concerning future nuclear arms reductions. The perception that all nuclear weapons were about to be removed from Europe quieted much of the opposition. The reaction further recognized the role these weapons have had in preserving the peace.

To remove these weapons chips away a small portion of NATO's deterrent force, no matter how minuscule it may be considered. If those who call for the removal of AFAPs are willing to risk Soviet adventurism in Europe which the absence of AFAPs may incite, it seems only sensible that they should also be willing to risk the escalation that possession of these weapons enjoins.

That improved AFAPs are destabilizing may be true. AFAPs may appear to be too usable. But that is what adds to the credibility of the deterrent force. The Soviets don't know that the NATO ministers won't be able to agree to authorize use. The Soviets don't know that they will be able to destroy enough of NATO's AFAPs to limit their impact on the Soviet strategic offensive. And as long as they don't know, they may very well decide to stay in their own backyard.

If the Soviets decide to attack and that a preemptory nuclear strike is essential for the success of that attack, then no amount of argumentation will have altered the eventual course of the war. AFAPs simply provide a means to signal NATO's resolve to stop the invading force, even if it requires escalation to the strategic level to do so. Europe has secured its defense under the umbrella of such a strategic nuclear response from the US for over thirty years. Peace has been relatively cheap.

Tempting success now by tampering with the formula is a little foolhardy. "Oops" is an inadequate response if AFAPs are removed from Europe and the Soviets determine that the situation is then suitable to attempt a little territorial aggrandizement.

Nor is reliance on Western technology a reliable solution. Such reliance assumes continued Western superiority in technology and an uncharacteristic failure by the Soviets to respond. It also assumes a continued surplus of resources to sustain advancement.⁸⁴

As surpluses diminish, fewer advanced conventional systems will enter NATO's inventories. Continued advances are becoming too costly. Extremely ambitious technology programs are already creating the cost increases and program delays commonly associated with advanced weapons systems.⁸⁵ As a result, there will be less and less development and procurement.⁸⁶ The fewer items procured for training, stockpiling, and actual use will result in what Henry Kissinger refers to as effective "structural disarmament."⁸⁷

This should be of particular concern to all members of NATO when considering the Soviet accomplishments during the few short years of Mikhail Gorbachev's reign. In the first three years under Gorbachev, the Soviet Union outproduced all of NATO in every major weapons category.⁸⁸

NATO has been unwilling to match that performance. The presence of nuclear weapons in Europe has allowed Europeans to buy their peace on the cheap. The conventional systems which replace AFAPs must guarantee some probability of success in stopping a Soviet breakthrough.⁸⁹ The design and procurement of such systems will represent a significant investment.

The advanced conventional munitions systems discussed as possible alternatives to AFAPs also possess hidden costs for the buyer. Although capable of achieving effects nearly equivalent to AFAPs, significantly higher quantities of ACM would still be required to achieve those effects. As an example, it would take an entire MLRS battery firing ACM to achieve the same results as a single .1 KT weapon.⁹⁰ Against concentrations, it would take hundreds of ACM to accomplish the work of a few AFAPs.⁹¹

In turn, the increased transportation requirements for the additional ACM would partially offset the reduction resulting from the switch of current basic loads to ACM. The increase in the number of ACM artillery missions required to obtain like effects would also result in a similar increase in the number of personnel required to conduct the fire missions.

Other reasons exist for not accepting ACM as the solution to the AFAPs issue. ACM are simply unsuitable for some targets. ACM don't create the same impression of pain to be suffered that

AFAPs provide.⁹² Likewise, the existence of cheap countermeasures to ACM and the absence of the bonus effects provided by AFAPs are among the additional problems that NATO would face in switching from AFAPs to ACM.⁹³

Such reliance upon technology also indicates to the Soviets a lack of resolve on NATO's part to use nuclear weapons in its own defense. Hence, the value of NATO's nuclear forces as a deterrent is diminished. War then becomes more thinkable. It very likely becomes more probable.⁹⁴

An additional consideration for those who propose reliance upon advanced technology to replace AFAPs is the impact that Western superiority may have on the Soviet command hierarchy. If NATO is able to develop a conventional weapon which the Soviets cannot match, they may be placed in such a position that the only way they can achieve similar results is to resort to nuclear weapons.⁹⁵ Thus, for all the effort to find a more suitable solution than AFAPs, we may advance to the point that we still force the Soviets to rely upon their nuclear stockpile.

And in seeking the next "ultimate" conventional weapon, one is reminded that for every advanced system which aids the defender, there is a new one which aids the side that strikes first.⁹⁶ The cycle is virtually endless, and no one can predict when it will stop.

Is it cost effective to replace the AFAPs? The evidence suggests that it is not.⁹⁷ Research, development, and procurement costs may just prove to be too prohibitive. The decision now facing the member nations of NATO is whether or not the risk of escalation represented by AFAPs is sufficient to

warrant switching to a more expensive, but perhaps more credible conventional defense. Doing so necessitates making the commitment to field the men, machines, and support systems required to ensure a high probability of success in deterring war or of defeating the Soviets, should deterrence fail.

Such an undertaking will not be cheap. Whereas peace has been bought on the cheap in Europe by coupling it with the US's strategic nuclear capability, a defense based on conventional weaponry will be expensive. That translates to more being spent, not less. In the case of NATO's member nations, social programs may have to suffer to support establishment of an adequate conventional defense. If history is any indicator, the probability of that occurring is very slim.

Politically, there are two ways in which the Soviets may respond if AFAPs are withdrawn from Europe. First, they may use the withdrawal as evidence to demonstrate the decoupling of NATO from the US's nuclear shield. They may further use it to embarrass the NATO governments for supporting the modernization programs resulting from the Montebello decision⁹⁸. Either portends difficulty for the Western alliance.

The question then boils down to one of moral right over all other considerations. If the morality of nuclear weapon use is paramount, and I feel assured that it is not for the Soviets, then any argument is superfluous. For those who consider the defense of freedom worth the risk of escalation, then a solution more acceptable than disposal is required.

X. Conclusions and Recommendations

There can be no doubt that AFAPs have contributed to the deterrence of war in Europe. Their greatest contribution to that deterrence has not been whether or not AFAPs have the capability to block a Soviet breakthrough. It is the increased fear of escalation and the potential devastation of Western and Central Europe that AFAPs represent that provides their real deterrent value. While difficulties exist, most NATO ministers recognize that AFAPs are essential to deterrence and insist that AFAPs be the last weapons to go in any arms reduction pact made with Gorbachev.⁹⁹

Although NATO's conventional forces continue to improve, they are currently inadequate to insure deterrence of Soviet aggression. Shortcomings in range, lethality, and survivability required to fight the next war as envisioned in the AirLand Battle and Follow-on Forces Attack also cause doubt as to the ability of these forces to defeat a Soviet attack in a purely conventional war.

Satisfactory means to employ nuclear weapons to compensate for this inadequate defense do not exist.¹⁰⁰ But until technology produces a system of conventional weapons which can keep the probability of war low and insure the defense of freedom if war erupts, nuclear weapons will remain the backbone of the deterrent force.

Should deterrence fail, then NATO must have the resolve to use any weapons it possesses to stop the Soviets and restore peace. Only the use of force will turn the Soviets from their

intended purposes. Any lack of resolve to use the means available to defend one's self will only invite Soviet aggression.

If the use of AFAPs is required, some collateral damage is bound to result. The desire to limit this damage must show a proper balance between restraint and the desired/required military effects.¹⁰¹ Although many Europeans are opposed to the extensive damage that the use of nuclear weapons may cause, there is little reason to believe that modern conventional combat would cause less. Unfortunately for all the non-combatants of the world, war is no longer a spectator sport.

In seeking a solution in the hallowed halls of technology, the possibility of recognizing a breakthrough and gaining a clear ascendancy over the Soviets is remote.¹⁰² They continue to outproduce NATO in major weaponry categories. And less than devout patriots still provide weapons systems design data to our recognized enemy, thus saving the Soviets billions of rubles in research and development monies.

Technology may enhance our ability to respond to Soviet aggression and to expect victory. But reliance upon conventional technology to provide the solution is inviting defeat.¹⁰³

Just as NATO's leaders concluded years ago that a mix of nuclear and conventional weapons provides the best solution to the alliance's defense needs, the same holds true today. Advanced conventional weaponry is a good complement for NATO's nuclear weapon systems. But alone, conventional weaponry just

doesn't possess the capability to deter Soviet aggression.

In seeking to lower the risk of war one may be tempted to try to calculate the appropriate mix of nuclear and conventional weapons required to achieve the necessary correlation of forces for mounting a successful defense. Without knowing precisely what will cause the Soviets to call off an attack, the result of that calculation cannot provide 100% assurance of success. Hence, no amount of capability, be it conventional or nuclear, provides conclusive evidence of decisive superiority.¹⁰⁴ On the other hand, the Soviets face the same problem in trying to calculate and achieve the appropriate correlation of forces to mount a successful offensive. As a result, deterrence is likely to remain viable.

But the risk of war cannot be brought to zero. We must be prepared to fight it regardless of how it occurs. We must recognize that AFAPs may present the last significant escalatory measure available to NATO to convince the Soviets that their goals are not worth the inestimable destruction that may follow.

Regardless of which side uses nuclear weapons first, both will be worse off as a consequence. At some point, the exchange will be decisive. But neither side may be the winner.

Before any decision is made to remove Artillery Fired Atomic Projectiles from Europe, however, the leaders of NATO may be wise to consider the advice of Winston Churchill:

"Be careful above all things not to let go of the atomic weapon until you are sure, and more than sure, that other means of preserving the peace are at hand."¹⁰⁵

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