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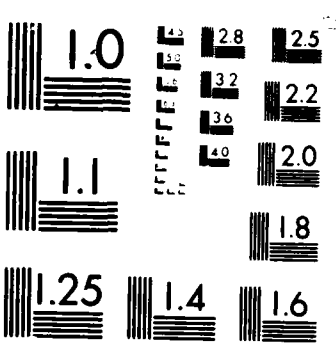

AIR WAR COLLEGE

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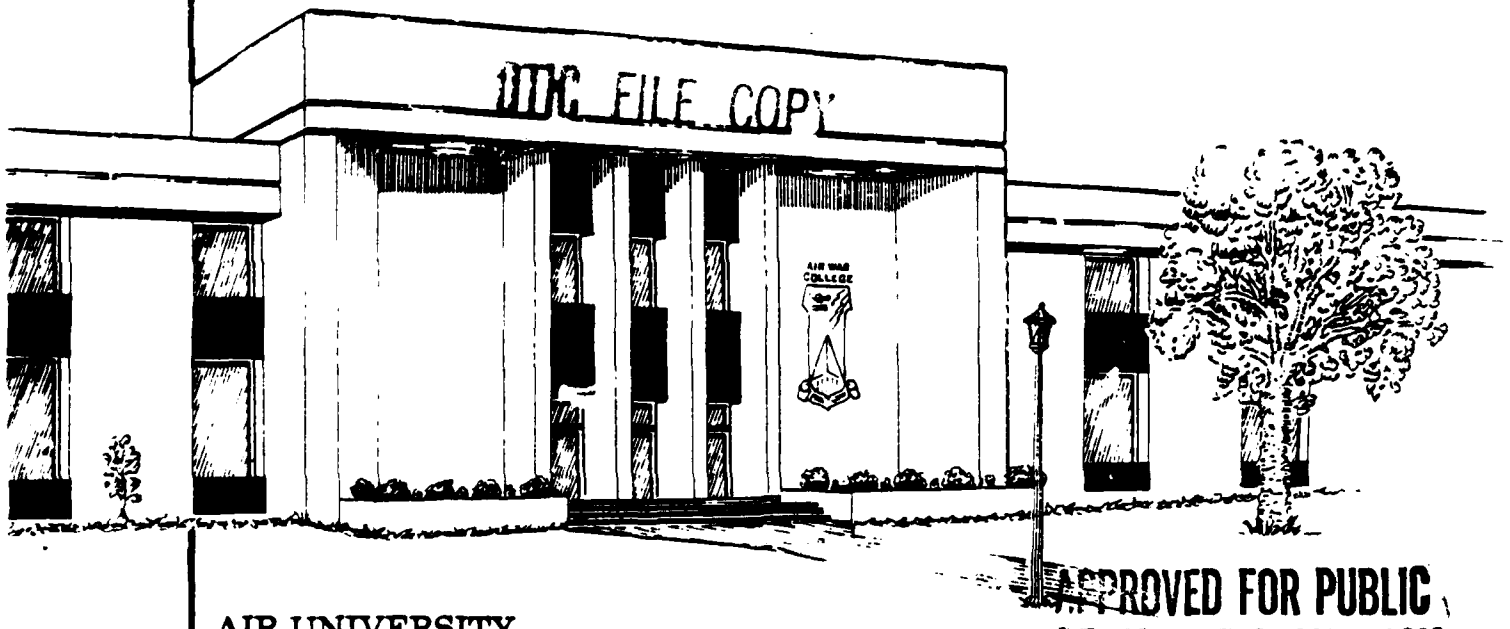
RESEARCH REPORT

No. AU-AWC-86-018

MORALITY TO STRATEGY
PERSPECTIVES ON OFFENSIVE WEAPONS IN SPACE

By LT COL JAMES R. BEALE



AIR UNIVERSITY
UNITED STATES AIR FORCE
MAXWELL AIR FORCE BASE, ALABAMA

AIR WAR COLLEGE
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MORALITY TO STRATEGY: PERSPECTIVES ON OFFENSIVE WEAPONS IN SPACE

by

James R. Beale
Lieutenant Colonel, USAF

A RESEARCH REPORT SUBMITTED TO THE FACULTY

IN

FULFILLMENT OF THE RESEARCH

REQUIREMENT

Research Advisor: Colonel Robert R. Gifford

MAXWELL AIR FORCE BASE, ALABAMA

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ABSTRACT

Since President Reagan introduced the concept of a Strategic Defense Initiative (SDI) in March 1983, space-based weapons have been a subject of broad national debate. To date, all consideration has focused on defensive applications, yet the technology which permits SDI is equally capable of supporting offensive weapons. This paper proposes increased consideration of offense related space issues. It outlines the moral, political, and military implications of such weapons and identifies several potential applications. The military utility of these weapons is considered in the context of current military strategy. Shortfalls are identified between current capabilities and strategies for power projection, air-land warfare, and limited strategic warfare. For each shortfall, the possible contribution of space-based weapons is considered. The paper reviews space weapon's support requirements and identifies issues associated with institutional advocacy. It concludes by recommending further analysis and debate on the subject of offensive weapons in space.

BIOGRAPHICAL SKETCH

Lt. Colonel James R. Beale (B.A., University of Washington; M.A., Central Michigan University) has been an active participant in Air Force Space programs since 1976. He has served in the Secretary of the Air Force Office of Space Systems and, prior to June, 1985, he was Deputy Chief of Staff for Space Activities at Hq. Electronic Security Command. He has also served in Vietnam, Thailand, and Okinawa and is a graduate of the Armed Forces Staff College. Lt. Col. Beale is a member of the Air War College class of 1986.

In 1909, H. G. Wells wrote War in the Air.[1] This popular and prophetic novel presented a fictional account of an airship attack in which the destructiveness and invulnerability of weapons used in this new medium of warfare (the air) exceeded that really achieved during the following thirty years. Similar accounts could be written today visualizing a future in which space weapons systems are substituted for 1909's postulated airships and in which expectations of destructiveness, invulnerability, and potential military utility are equally high.

Since President Reagan's "Star Wars" speech of March 23, 1983, space weapons have been a subject of national debate. However, this debate has not addressed offensive issues. As with aircraft in 1909, space weapons have real potential for offensive employment which warrants serious and immediate consideration.

The National Debate

A cursory glance at the "space weapons" section of any recent Guide to Periodical Literature will attest to the fact that a national debate is ongoing. To date, this debate has focused on the Strategic Defense Initiative (SDI) and has addressed topics such as:

- The scientific basis, technical feasibility, and affordability of a space-based defense;

- the political and policy implications of an assured defense strategy;

- the philosophical issue of militarization of the heavens.

The potential applications of the new spacecraft and weapons technology underlying SDI are, however, much broader than the assured defense concept currently being debated. Over the next decade, technologists will offer opportunities, in the form of systems concepts, to develop space-based offensive as well as defensive systems. Such concepts may have utility at levels of crisis ranging from terrorism and unconventional warfare to non-nuclear strategic conflict.

Information on the technical feasibility, performance, and cost of such concepts will be a fallout of SDI research. In this sense, offensive weapons decisions are not required at this time. However, as with the concept of assured defense, there are a range of issues unique to offensive space weapons which affect grand strategy, U.S. national interests, military strategy, and military planning. These issues are not yet a part of the current strategic debate and need to be incorporated.

Space Weapons Environment

The realization of President Reagan's vision of a world free from nuclear weapons in which each power depends for security on an assured defense rather than an assured offense

is dependent on major advances in space and weapons technologies. To determine if such a strategy is technologically possible and, if so, at what cost, basic research on space and weapons technology is being performed at a high level of effort. A five year, $26 billion research budget has been proposed.[2] This technology effort is broad-based and includes efforts in the public and private sectors as well as in allied nations. Similar efforts are ongoing within the Soviet Union.

Any discussion of offensive space weapons must be within the context of the current and programmed SDI effort. This is true for two reasons. First, the research focused on strategic defense will have extensive offensive applicability. Basic research into hypervelocity and beam weapons, data processing systems, spacecraft attitude control, power and survivability features, and launch and support facilities are all as relevant to the offensive weapons designer as to the defensive. The principal difference between SDI-oriented research and that which would be associated with an offensively oriented initiative is in the priorities assigned to individual research projects and the pace at which basic technologies are developed.

A second major impact of SDI on space weapons thinking involves the fundamental shift in military strategy which SDI represents. For the past forty years, the veiled threat of

strategic nuclear weapons has served as a brake on regional military adventurism by the nuclear powers. If these weapons are phased out of the inventories of the U.S. and the U.S.S.R. (a point of debate among SDI proponents) there would be less risk associated with great power confrontation and therefore low and mid-intensity conflict would be somewhat more likely. This circumstance would affect mission priorities and military force structure and create an environment in which the potential utility of weapons in space would be enhanced.

It is also necessary to consider offensive space weapons within the context of our current defense strategy. This strategy was recently described by Secretary Weinberger in his FY 1987 posture statement. As reported by the New York Times,[3] the posture statement explains the conceptual basis for our strategy as one of deterrence at all levels of conflict. It begins with a recognition that concepts such as nuclear deterrence, escalation control, escalation ladders, and limited war are hangovers from the 1950's when the United States had clear nuclear superiority. It concludes that these concepts are no longer valid. The strategy developed to replace these outdated concepts is one of deterrence based on new technologies such as those underlying SDI, and force levels sufficient to dissuade aggression at all levels of conflict intensity.

Three strategic concepts outlined in the posture statement are particularly applicable to space weapons. One of these involves a firm objective of not committing U.S. troops to battle for causes which are not clearly and directly threatening vital national interests. This strategic concept is a direct outgrowth of Vietnam. It seeks to avoid using military personnel to achieve limited aims which may not be well defined or which do not enjoy widespread support among the American public. The strategy to achieve this objective is peace through strength. As Secretary Weinberger has said, "The stronger our conventional deterrence, the less likelihood of an attack and the lower the risk of war. The more vigorous our conventional deterrent, the less we must rely on the threat of nuclear retaliation."[4]

A second important element of the new strategy is a weapons policy which creates incentives for the Soviet Union to bargain on Arms Control. The strategic approach is to demonstrate American determination to maintain deterrence at whatever force levels are necessary. This includes both nuclear and non-nuclear forces.

The third tenet of the new strategy which directly affects space weapons considerations is the concept of "competitive strategies."[5] This concept calls for investment in military weapons which exploit U.S. advantages, undermine Soviet strengths and reduce the utility of existing

Soviet systems. One example of such a strategy is the development of low observable technology bombers which exploit a U.S. technological strength while simultaneously undermining the value of both the existing Soviet Air Defense system and their latest radar and missile technologies.

These three strategic principles argue strongly for serious consideration of space-based non-nuclear weapons. They could provide a technological counter to Soviet conventional force dominance. They offer the potential, in a power projection role, of an alternative to the use of U.S. combat troops. Their existence would substantially increase world perception of U.S. non-nuclear military capabilities and mere consideration of their development would threaten Soviet conventional power. Thus, even if never developed, the threat of such a weapons development would put pressure on the Soviet Union to enter into serious negotiations to significantly reduce conventional forces. From all perspectives, therefore, space weapons offer the opportunity to use U.S. technological strengths to restore the conventional balance and to enhance deterrence.

Moral and Political Considerations

A fundamental question underlying any consideration of their development is whether space-based weapons are, in concept, morally incompatible with American values. The answer appears to be no. A number of moralists have

addressed the issue of just and unjust wars but such discussion involves the circumstances under which a weapon is employed and not the weapon itself. The "critical distinction has not been between the prohibited and acceptable weapon but between the prohibited and acceptable target."[6] Nuclear weapons are an exception, primarily because of their far-reaching impact on innocent non-combatants. Catholic bishops, in a Pastoral Letter of U.S. Bishops on War and Peace, assert that both nuclear war and deterrence through the threat of nuclear war are morally unacceptable.[7] In addressing the morality of war the bishops observe that a "justifiable use of force must be both discriminating and proportionate" and they express concern about protecting the moral value of non-combatant immunity.[8] This logic would indicate that the space basing of weapons which may be employed in a discriminating and proportionate manner and which do not unreasonably threaten non-combatants would be morally acceptable. (At least they would not be any less morally acceptable than similar capabilities based on aircraft, ships, or at ground installations.)

A more contentious conceptual challenge to space weapons, both offensive and defensive, involves their consistency with U.S. national interests. This view holds that U.S. security interests can only be served through a

reduction in tension brought about by a reduction in opposing military forces. It is argued that this objective can best be achieved through negotiation. In this view, space weapons can only spur an arms race which will be inherently costly, destabilizing, and in the final analysis unproductive. A proponent of this view, Jack Manno, has observed that:

> "The real tragedy of an arms race in space will not be so much the weapons that evolve - they can hardly be worse than what we already have - but that by extending and accelerating the arms race into the twenty-first century the chance will have been lost to move toward a secure and peaceful world."[9]

Other advocates of this view have proposed immediate negotiations to ban all weapons in space.[10]

Counter-arguments address the impracticality of negotiations and the need to better understand the strategic consequences of space systems before negotiating. An advocate of this perspective observed that:

> "Although (the Carter administration's) preference for arms control designed to preserve space as a sanctuary is widely acknowledged, the practical feasibility of negotiating an even-handed, verifiable agreement banning ASAT capabilities appears virtually nil."[11]

Proponents of SDI also note that it is premature to negotiate space weapons treaties. First we must understand the opportunities, trade-offs, and risks inherent in such systems. SDI research will provide relevant data. Second, we must consider the options in strategic terms to fully

understand the security to be gained or lost through their development. Only by proceeding along this methodical path will future decision makers be in a position to choose between system development or negotiation to ban development.

Another argument against U.S. agreement to a space weapons ban is the previously discussed concept of competitive strategies. To negotiate away a major U.S. strength for a Soviet weakness would leave the United States in a position wherein deterrence could only be achieved through matching numbers with the Soviet Union. Such a strategic approach would match a Soviet strength against an American weakness.

Strategic Basis for Offensive Space Weapons

Conceptually, space-based offensive systems have many militarily desirable characteristics. From their relatively high altitude they have broad geographic access, unconstrained by conventional defenses or national boundaries. Within their access area they could respond essentially on demand to bring force to bear on a target. Assuming highly directional beam (i.e. laser or particle beam) or kinetic energy weapons, surgical attacks which minimize collateral damage should be feasible. Similarly, electronic warfare attacks could be focused to complement other space or terrestrial weapons. The performance of such weapons would be relatively predictable and controllable so as to minimize

the impact of the friction of war, and they would be relatively invulnerable to conventional defenses. Further, they could be operated from outside an engagement area so as to minimize friendly force casualties, and could be rapidly retargeted to support widely dispersed geographic conflicts or to respond to surprise.

In a broad sense, these characteristics are supportive of our Clausewitzian strategy. That is, they provide a means, either alone or operated in concert with other military forces, "to compel an enemy to do our will"[12] and they are clearly controllable by the political leadership and can thus be used as "a continuation of political intercourse carried out by other means."[13] More specifically, they offer potential "fixes" for current mismatches between U.S. military strategy and the capability of our existing forces. Specific applications can best be viewed in the context of varying intensity conflicts and the likelihood of such conflicts occurring. Military threats can be viewed as points on a continuum ranging from strategic war involving weapons of mass destruction to such conventional threats as insurgency and terrorism. This is depicted graphically in Figure 1.

The most serious threats are at the highest level of conflict (e.g. nuclear war) and the less serious, but more likely, are at the lower intensity levels. The most likely

conflicts with which United States forces may have to deal involve low intensity warfare. One military strategy for dealing with this is power projection. In the case of terrorism, for example, the objective would be to attack the center of gravity of a terrorist organization. This includes those nations and people who plan, support, and encourage terrorism. Attacks must be made with sufficient force so as to demonstrate that the cost to the perpetrators of low intensity warfare is unacceptably high. Such a strategy is only effective if the cost to the United States of employing force is not itself too high to maintain public support, for in low intensity conflict such support is the U.S. center of gravity. Consideration of a military response to the December, 1985 terrorist bombings in Rome and Vienna illustrates the frequent strategy and capability mismatch. According to the Associated Press, a Pentagon source, referring to the concept of hitting only the target and losing no planes, explained: "People at the State Department and White House keep talking about surgical strikes but there is no such thing as a surgical strike."[14] Similar examples involve the shootdown and capture of U.S. pilots in Lebanon during a retaliation raid and, on a larger scale, the impact on U.S. public opinion of the air crew prisoners of war during the Vietnam conflict.

The power projection strategy has evolved from turn of

the century battleship diplomacy. Today's means of power projection is the tactical bomber. It is effective as long as the threat is real and cannot be effectively resisted. As evidenced by the above examples, in the current international environment power projection often fails. This occurs because of the proliferation of sophisticated air defense systems and because the consequences of the loss of airplanes and the creation of pilot hostages are judged unacceptably high.

In such circumstances, the potential application of space-based weapons is apparent. Their characteristics lend themselves to select, limited targets. They are virtually invulnerable to interdiction by any third world country and should remain so for the foreseeable future. Further, they protect the U.S. center of gravity by greatly reducing the exposure of retaliatory forces to capture or destruction. These features not only enhance power projection but by their uncontestable force would also serve to deter low intensity aggression. They could be used as the Romans used the overwhelming power of their legions to "conserve force and manipulate images of military power - thus using latent force as an instrument of diplomatic coercion."[15] Through the existence of such irresistible power, low intensity conflicts may be resolved "by breaking the enemy's resistance without fighting."[16]

A less likely military conflict, but one of far greater importance to the security of United States interests, involves a large-scale conventional war in a location such as Europe or Korea. U.S. strategy for the conduct of such a war is a topic of current debate. Military reformers are advocating adoption of a maneuver scheme of warfare as contrasted to previous attrition strategies. The air-land battle concept represents a hybrid between maneuver and attrition. This strategy is based on early attacks against follow-on forces and requires extensive close air support to ground forces. The number of aircraft in the USAF inventory is relatively small, partially because the cost of individual aircraft capable of surviving on the battlefield is high. These aircraft have missions of air supremacy and deep interdiction as well as those directly supporting the air-land battle strategy.

The role of space-based weapons in a mid-intensity conflict must be to serve as a force multiplier for the limited number of Air Force aircraft. Much depends on the technical, performance, and cost characteristics of specific space systems. Conceptually, space weapons could perform the deep interdiction mission, at least against some classes of targets. Tactically, this might free resources for close air support. Programmatically, it might allow development of more, less sophisticated aircraft capable of meeting air-land

battle mission requirements but not designed for deep penetration missions in a dense air defense environment. Other possible missions involve electronic warfare to support deep penetration missions by passive aircraft and counter-air against such high altitude targets as transports and airborne warning and control aircraft.

Strategic war with the Soviet Union is least likely but certainly the most threatening and important level of conflict. In this regime, the role of offensive space weapons is highly controversial. If systems are designed for interdiction-type missions with a goal of augmenting nuclear weapons systems, or supporting countervailing strategy counterforce objectives, they will certainly fuel an arms race. If, on the other hand, they prove technically capable of replacing nuclear weapons as a strategic deterrent, their directivity and characteristic lack of collateral damage would make them morally more acceptable than current nuclear systems. In this sense they might offer an alternative if strategic defensive technologies prove infeasible.

Another potential strategic use of offensive space weapons is as an enhancement to flexible response. Our current strategic concept calls for a way to demonstrate national resolve during crisis without precipitating a nuclear exchange. One desirable option in a crisis might be to create, through a demonstration of resolve, sufficient doubt

and uncertainty in the minds of Soviet planners so as to cause them to seek negotiation rather than escalation. To achieve this with current forces, without precipitating a nuclear war, would be a great challenge. A nuclear demonstration is high risk. Conventional military actions to demonstrate resolve may either fail (as with an aircraft which is shot down), which would demonstrate weakness, or be mistaken for nuclear attacks. Under such conditions beam or kinetic energy weapons based in space might fill a strategic void.

Institutional and Support Considerations

Space weapons programs, if developed, will require substantial support systems. An extensive space surveillance system will be needed. It must include the capability to detect, locate, and characterize threats to United States space systems and terrestrial forces and facilities. Active space defense measures such as ASATs must also be provided to respond to such threats. Reliable command and positive control of weapons will be essential. Similarly assured access to space must be available. This will entail an increase in space launch systems and launch support facilities.

Depending on the outcome of the Strategic Defense Initiative, many of these necessary infrastructure elements may be provided independently of any offensive weapons system

acquisition. Nonetheless, the fiscal impact of offensive space weapons will be substantial. Trade-offs should exist. For example, if a power projection system is acquired and proves effective, the requirement for the forces which currently perform this mission (carrier based airpower and the associated supporting naval task forces) should diminish. Similarly, if deep interdiction missions can be performed from space, there should be trade-offs involving the number and complexity of Air Force aircraft.

Such trade-offs will stiffen already significant institutional barriers to space weapons development. In the competition for funds and missions, institutional advocates for existing naval and Air Force systems as well as space defense systems advocates in the SDI organization (SDIO) and civil space advocates in NASA will argue that their projects are more critical and more deserving of scarce funds. There is no comparable institutional advocate for offensive space weapons. The SDIO is clearly chartered for defensive systems[17] and while much of the basic technology it advocates will have offensive utility, specific system applications will be different. Within the Air Force there is no clear allocation of space weapons responsibility. Traditional strategic, tactical, and space missions are affected and SAC, TAC, Space Command, and Systems Command all have interests. Yet, the Defense budget is constrained and

there is a relatively fixed share of that budget available to Air Force activities. Space weapons will compete both for funds and missions with traditional aircraft programs having broad based socio-cultural and institutional support within the Air Force.

Future Consideration of Space Weapons

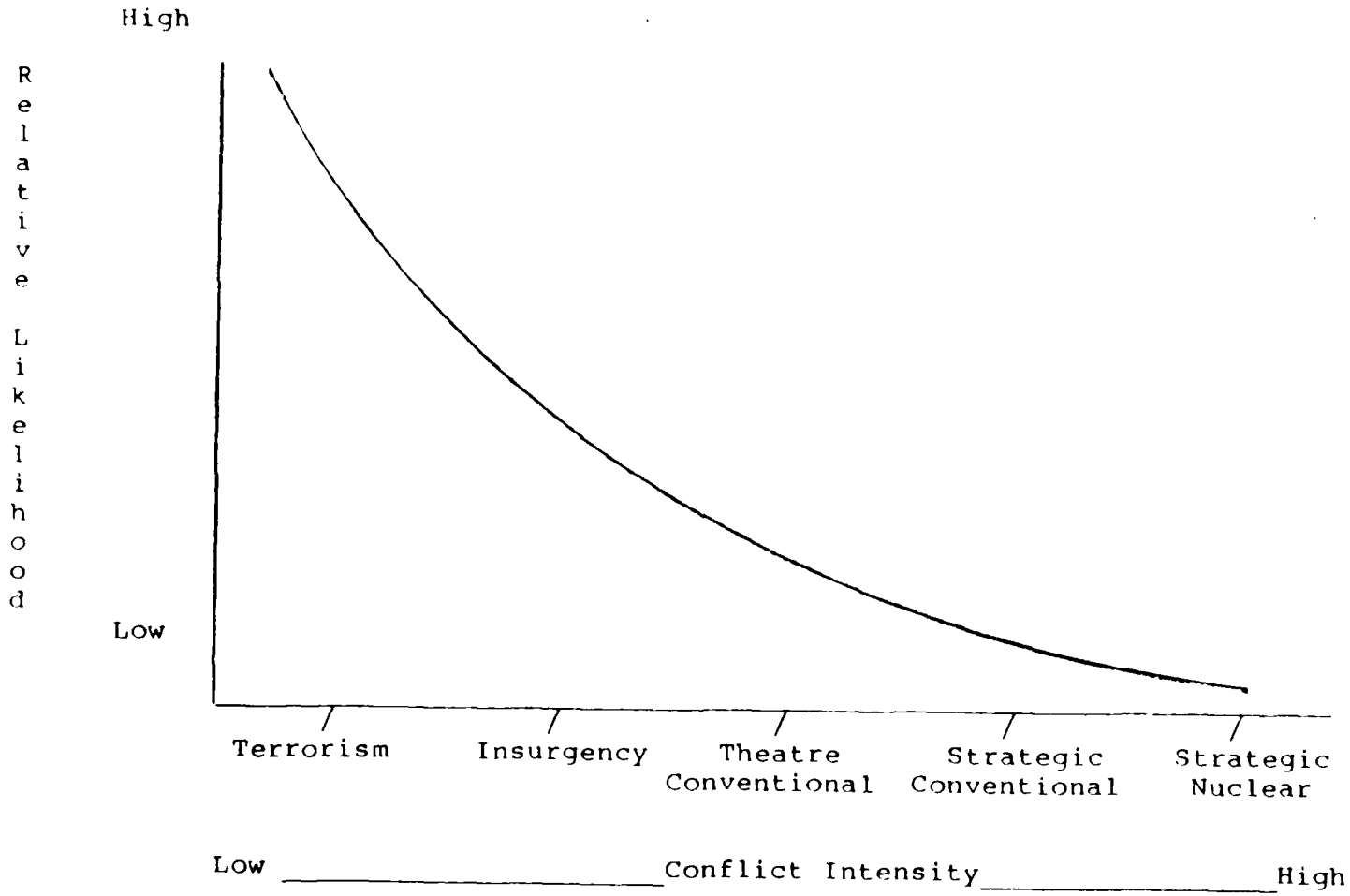
In the debate on offensive air power in the 1920's and 1930's, the issue was acceptance or rejection of the fundamental doctrine that "the airplane possesses such ubiquity, and such advantages of speed and elevation, as to possess the power of destroying all surface installations and instruments, ashore and afloat, while itself remaining comparatively safe from any effective reprisal from the ground."[18] This argument was based on both conceptual aircraft systems and combat experience in World War I. Experience in World War II and since has demonstrated that neither side of the argument was true. Aircraft have made major contributions to national defense and security but they alone have not achieved the results promised by their early advocates.

It is easy to perceive of space and space weapons today in the same context as early airpower theorists viewed aircraft. Space weapons are more conceptual in that advocates' optimism and opponents' pessimism have not been tempered by any combat experience or any "real" systems.

Yet, as Lt. General Kelly Burke once said, space weapons "have a transcendental flavor, a little like gun powder. We ignore them at our peril."[19]

The challenge then is to consider offensive space weapons. It is to develop a political consensus as to their consistency with U.S. values and interests. It is also to develop an advocate within the military to insure that technology applications are fully considered as elements of military strategy and compete equally with other weapons alternatives available over the next generation. Only by seriously addressing the issue of offensive weapons in space will this country be able to meaningfully choose between a policy which attempts to ban space weapons and one which relies on them to further national security.

Figure 1


High
Relative Likelihood
Low
Terrorism
Insurgency
Theatre Conventional
Strategic Conventional
Strategic Nuclear
Low
Conflict Intensity
High

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