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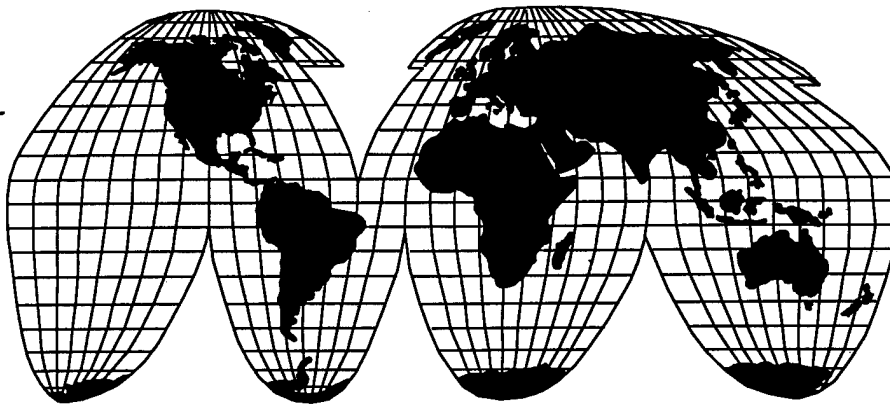
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Final Report

USAF Institute for National Security Studies 1997 Research Conference

**U.S. Air Force Academy, Colorado
13-14 November 1997**

**Sponsored By
USAF Institute for National Security Studies
United States Air Force Academy
and
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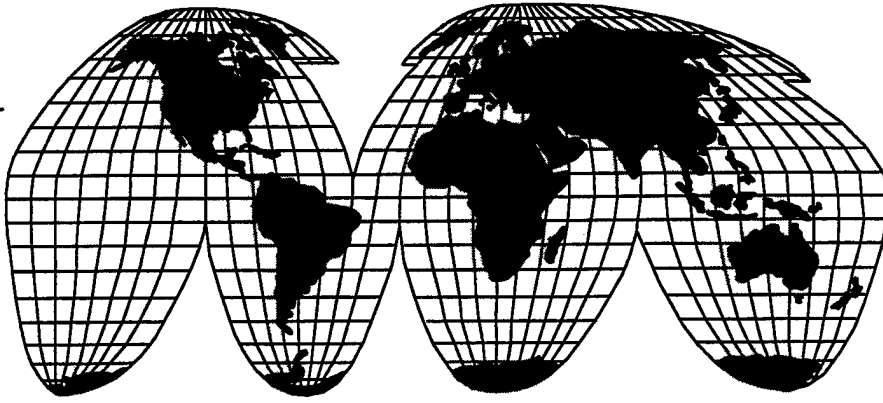
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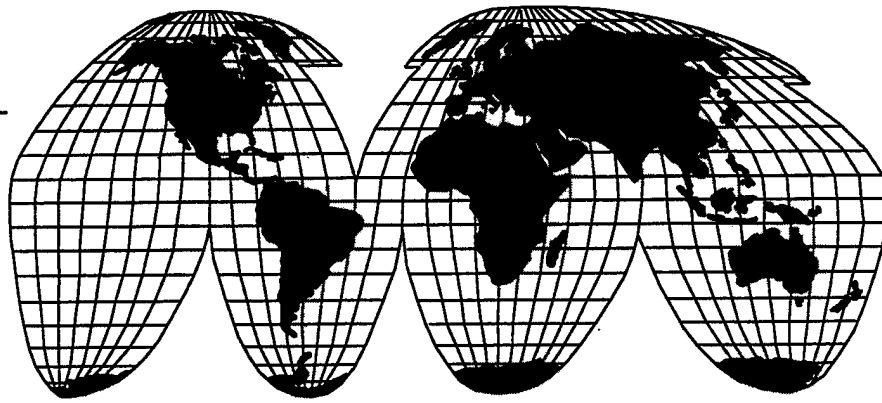
USAF INSTITUTE FOR NATIONAL SECURITY STUDIES



"1997 RESEARCH CONFERENCE"
13-14 NOVEMBER 1997

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Executive Summary

1997 Research Conference

EXECUTIVE SUMMARY

Background

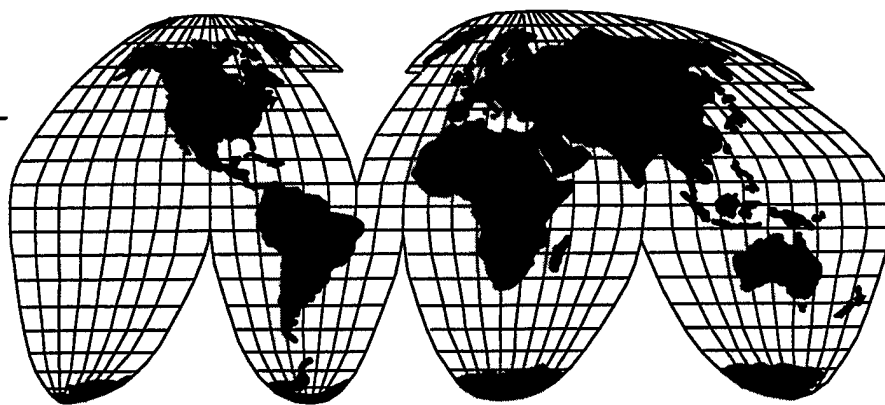
The U.S. Air Force Institute for National Security Studies (INSS) in cooperation with HQ USAF, AF/XONP sponsored its fifth annual Research Results Conference on 13-14 November 1997. The Conference was held at the U.S. Air Force Academy, Colorado Springs, Colorado. The purpose of the Conference was to present the findings of research conducted under the sponsorship of INSS. Participants included specialists in international relations, national security policy, and military affairs from U.S. Government agencies, Services, and academia.

Opening remarks were offered by Lt Gen Tad Oelstrom (HQ USAFA/CC), Maj Gen Thomas H. Neary (HQ USAF/XON), and Lt Col Peter Hays (USAF/INSS). Following opening remarks and brief administrative comments, Conference proceedings focused on the presentation of research in the following ten issue areas:

- Arms Control;
- Counterproliferation;
- Space Policy;
- Air Force Policy;
- Information Warfare;
- Regional Security (Asia);
- Regional Security (Russia);
- Regional Security (Africa);
- Regional Security (NATO); and
- Environmental Security.

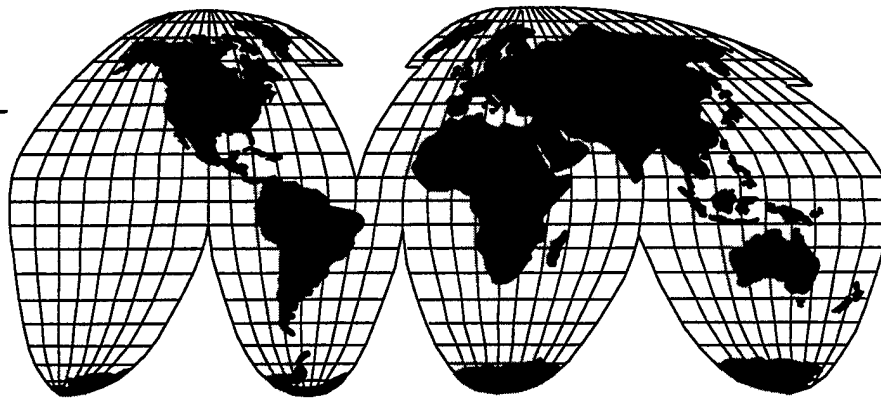
Panels consisted of three to six researchers and a chair was selected for each of the issue areas. Following presentations by all panelists, participants engaged in wide-ranging discussions and debate. The proceedings are captured in this report and the works presented reflect the opinions of the researchers and are not to be taken as official government or institutional positions.

Maj Gen Charles D. Link (USAF, Ret.), Executive Vice President of the Air Force Memorial Foundation, gave the keynote speech at a banquet for all participants on 13 November 1997.



Conference Proceedings

1997 Research Conference



Panel 1.

Arms Control

Lieutenant Colonel Jeffrey Larsen, Chair
Lieutenant Colonel Gwendolyn Hall
Major John T. Cappello
Captain Stephen Lambert
Senior Chief Petty Officer Michael Dosier
Captain William Casebeer

1997 Research Conference

PANEL 1: ARMS CONTROL

Chair: Lt Col Jeffrey A. Larsen, Senior Research Fellow, United States Air Force (USAF) Institute for National Security Studies (INSS)

Participants: Lt Col Gwendolyn M. Hall, USAF Academy (USAFA), Department of Political Science (DFPS)
Maj John T. Cappello, USAFA/DFPS
Capt Stephen P. Lambert, USAFA, 34th Education Group (34th EDG)
Senior Chief Petty Officer (SCPO) Michael E. Dosier, United States Navy (USN), Joint Military Intelligence College (JMIC)
Capt William Casebeer, USAFA, Department of Philosophy and Fine Arts (DFPFA)

PANEL PRESENTATIONS:

“Responding to Political Pressure to Denuclearize the US Strategic Arsenal: US Nuclear Arms Control Strategy for the 21st Century,” Lt Col Gwendolyn M. Hall, Maj John T. Cappello, and Capt Stephen P. Lambert

Lt Col Hall, Maj Cappello, and Capt Lambert opened the first panel with their examination of the evolution of the post-Cold War international environment and its effects on US nuclear strategy. The authors convened their presentation by noting that despite a change in the strategic calculus of global security in the post-Cold War era, nuclear weapons still retain some real or perceived role in assuring the security of the Superpowers. Moreover, no attempt has been made to re-conceptualize the role of nuclear weapons in the context of US post-Cold War national security strategy. Additionally, calls for complete nuclear disarmament, notably by General Butler, have gone largely ignored. In light of these facts, the authors framed their research with two central questions: first, does the post-Cold War international environment differ from its Cold War predecessor; and second, if the environment has changed, can the US afford a significant alteration in its security strategy?

In order to effectively measure any potential modification of US nuclear strategy, the authors believed it critical to assess the role of Russian nuclear weapons in national and international security. The authors determined that no comprehensive elaboration of contemporary Russian approaches exists. Further, any attempt to formulate such an elaboration would be complicated by the dynamic nature of Russian politics.

However, the authors did identify five key concepts that together form a foundation for Russian nuclear strategy: first, most Russian military planners believe that because of their deterrent capabilities, strategic nuclear weapons are the foundation of international security; second, nuclear weapons guarantee Russia's Superpower status; third, nuclear weapons provide a valuable “last line of defense;” fourth, theater and tactical nuclear weapons provide defense against localized threats, primarily from the

Southern Flank; and finally, nuclear weapons fulfill a deterrent role in the provision of security for the newly independent states of the former Soviet Union.

Beyond these key concepts, however, the constantly changing landscape of Russian politics complicates Russian strategic calculations. The authors identified four groups within Russia who deal with nuclear policy, but noted that no single group dominates the others. The first group is the Russian military, which is experiencing a period of malaise brought about by a reduction in authority, if not in outright power. The second group is the Defense Industrial Base, or economic elite. This group is marked by patrimonialism (or *nomenklatura* capitalism), a feudalistic system of clan-style businesses, and corruption. A third group is the Neo-Communists or revanchists, identified most often by their zeal for a return to the "glory days" of Communist rule. The last group is the nuclear elite, or nuclear policy makers, who believe strategic nuclear weapons are the foundation of international security.

Having evaluated Russian nuclear strategy, the authors advanced several key assumptions for consideration during the development of a post-Cold War US nuclear strategy:

- Nuclear deterrence, as an operating concept, is not in danger in the near- or long-term.
- Nuclear deterrence will not require the same numbers of weapons, mix of weapons, or alert status of weapons as it did during the past fifty years.
- The focus should turn to non-strategic nuclear weapons in an attempt to increase crisis stability, and reduce the possibility of "loose nukes."
- If strategic numbers decline dramatically and tactical nuclear weapons are virtually eliminated, then nuclear defenses become more defensible to those who were once opposed to them.
- General Goodpaster's summation of the political and military realities, and thus, what the US should do seems to be the likely course of action regarding nuclear weapons in the post-Cold War era.

The authors concluded that the elimination of *most* nuclear weapons is a realistic goal that will demand the time, attention, and best efforts of the US for the foreseeable future; however, they also concluded that the elimination of *all* nuclear weapons remains, for the present, well beyond the grasp of the United States. Fortunately, this is a decision that the US is not yet forced to make, as it will take ten years or more to dismantle the weapons already marked for elimination. In that time the US will need to assess the impact of the Non-Proliferation Treaty, the evolution of the Comprehensive Test Ban Treaty, and the development of the world security environment. During the intervening years, the US should ensure the safety, reliability, and adequacy of the US nuclear arsenal.

“Devising an Effective Arms Control Verification Regime for Monitoring Warheads,” SCPO Michael E. Dosier

SCPO Michael Dosier presented a summary of his research into the development of an arms control regime for nuclear warheads. To date, arms control regimes have concentrated on the elimination of classes of weapons through the elimination of delivery systems, but not on the warheads themselves. Chief Dosier believes that the focus of arms control must evolve beyond concentration on classes of weapons; therefore, he proposes that a warhead control regime be a goal of the United States in the future.

When pursuing a warhead elimination regime, an initial difficulty lies in determining what exactly constitutes a nuclear warhead. Chief Dosier stated that a nuclear weapon may be subdivided into three constituent parts: the means of delivery, the command and control components, and the nuclear warhead itself. To achieve an effective regime for the tracking, monitoring, and verification regime for nuclear warheads, Chief Dosier proposed that treaty-limited items would be the constituent parts of the warheads. While this might seem to be an immeasurable problem given that warheads can contain thousands of individual components, recent arms control agreements give hope that an effective regime could be developed. For example, the Intermediate Range Nuclear Forces (INF) agreement created short-notice inspections. The Strategic Arms Reduction Treaties (START) developed the concepts of data exchanges and continuous declarations. The Conventional Forces in Europe (CFE) Treaty introduced challenge inspections, while the Chemical Weapons Convention (CWC) has taken them to a new level. It is the inspection and verification aspects of the CWC to which Chief Dosier looks as an example of a possible warhead verification regime.

Chief Dosier identified five elements necessary to the creation of an effective regime:

- A comprehensive exchange of data and continuous declaration.
- An inspection regime.
- Verified dismantlement.
- Verified elimination of plutonium pits.
- Establishment of a new, or use of an existing, body to arbitrate disputes.

Given these required elements, Chief Dosier then proposed a possible outline for an effective verification regime:

- Distinguishability exhibitions.
- Baseline data inspections.
- Close-out inspections.
- Short-notice inspections.

- Dismantlement and elimination inspections.

In conclusion, Chief Dosier believes that openness is the key to success in such a regime. He acknowledged that attempting to locate hidden warheads could prove to be impossible, but that confidence gained with the continuous verification regime would, over time, provide information that is consistent with reality.

“The Coming Revolution in Arms Control,” Capt William Casebeer

In the final paper presented by the panel, Capt Casebeer focused on developing technologies that will impact procedural concerns in arms control. In his view, three critical nascent technologies are reaching fruition, and they carry with them the potential to generate far-reaching and fundamental changes in arms control.

The first of these technologies is virtual reality (VR). Traditionally speaking, VR creates a completely immersive environment for the user, simulating sights, sounds, and feel through computer-generated imagery. Once the restricted purview of high-tech and high-dollar flight simulators, recent advances in computer processing power have allowed smaller-scale VR systems to become possible. In Capt Casebeer’s view, VR could play an important role in future arms control in three areas:

- **Framing Problems:** VR would allow arms control data to be viewed in new ways, providing important contextual meaning that otherwise would be unavailable. It also would create the ability to capture changes over time, and would allow data to be seen rather than simply tabulated.
- **During Negotiations:** VR would allow negotiators, or those supporting negotiations, to envision alternative futures in an agreement, and would allow those using the system to think more abstractly and away from the particulars of an agreement.
- **Implementation and Enforcement:** VR could create new means for verifying and monitoring compliance. It would be most effective when used in conjunction with other technologies (e.g., remote sensing), but could provide an initial transparency in most cases.

Another developing technology, actually a pair of related technologies, are artificial intelligence (AI) and artificial life (AL). The distinction between these two technologies is small, but important. In AI, the computer does some of the same things that the human mind might do, through the use of neural networks and algorithmic approaches. AL seeks to study life ‘*in silico*’ with the potential for physical realization. Both technologies could bring new approaches to arms control. Traditional human thinking typically is described as lateral, but AI and AL could supplement this thinking with abstract ideas outside of traditionally accepted norms, thus creating new “idea spaces.” Treaty enforcement, too, could benefit through the use of this technology to

monitor compliance autonomously from actual human presence on-site. AI and AL also could open new avenues in problem resolution.

The third technology Capt Casebeer identified as having an impact on today's world is remote sensing, particularly through the use of commercially available sensor equipment (e.g. commercial satellite imagery). Once the exclusive realm of first-world governments, remote sensing systems are now commercially available, and their capabilities are approaching those of some older military systems. Resolution of three meters is now available, with one meter resolution expected to be available next year. The wide availability of this technology has created a radical new level of transparency which must be recognized. Now, non-treaty participant nations can monitor some aspects of a nation's capabilities through the use of these commercially available services, creating a new contingent of "observer" states.

In the view of Capt Casebeer, these three areas of technology, taken as a whole, will have the effect of making every stage in the arms control process largely transparent to the United States public and eventually to most of the world. Particularly significant will be the impact of the synergy generated by a combination of these three technologies. Together, they could create a fundamental shift in the world view.

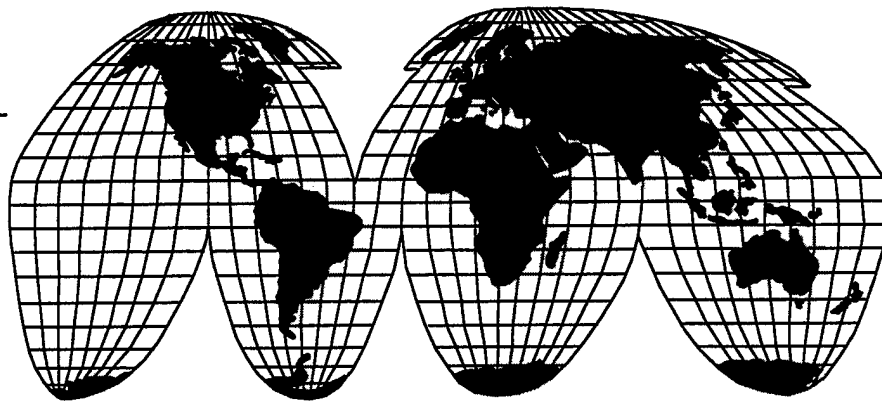
PANEL DISCUSSION

Following the last presentation, the audience was invited to question the authors on their material. On the first paper, it was pointed out that while it could be separated into two separate papers (one concentrating on US approaches, the other focusing on the Russian approach), it really requires an assessment of the Russian perspective in order to fully understand US actions. Some in the audience were particularly taken with the idea of the applicability of General Butler's ideas, and that, while it was true that there was little debate initially, the de-alert concept seemed to be picking up steam in recent days. One suggestion for the authors, or perhaps for other researchers, was to look at the de-alert option from the Russian perspective. Another member of the audience noted that as one reduces numbers of nuclear weapons, it can present a dangerous situation as it tends to reduce first strike stability and makes a preemptive first strike more useful.

On the subject of a nuclear warhead agreement, participants appreciated the overview of past treaty approaches as they might be applied for new uses, but cautioned not to short-change the political acceptability of such an agreement. Another participant expressed concern over Chief Dosier's proposal for a governing oversight body for the agreement, but Chief Dosier explained that what he envisioned was more in line with the Joint Compliance and Inspection Commission than in the creation of some new UN-type body. He also thought that any such agreement would be multinational.

On Capt Casebeer's presentation, while noting that VR and AI/AL could ultimately play some role in arms control, most participants focused on the present reality

of commercially available imagery as the technology most likely to impact arms control in the future. A participant noted that the Arms Control and Disarmament Agency (ACDA) had sponsored a conference on commercial high-resolution imagery and that while it was one thing to have access to one-meter resolution images, it remained quite another to accurately interpret the information presented. Nonetheless, some participants recognized that such imagery could, in effect, turn arms control into a "spectator sport," particularly given the prevalence of the Internet in today's society.



Panel 2.

Counterproliferation

Lieutenant Colonel Alex Ivanchishin, Chair
Captain Donald Lagator
Major Martin Wojtysiak
Dr. Peter Lavoy
Dr. James Wirtz

1997 Research Conference

PANEL 2: COUNTERPROLIFERATION

Chair: Lt Col Alex Ivanchishin, Policy Division, Nuclear and Counterproliferation Directorate (XONP)

Participants: Capt Donald P. Lagator, USAF Space Command (AFSPC)
Maj Martin J. Wojtysiak, Air Command and Staff College (ACSC)
Dr. Peter Lavoy, Naval Postgraduate School (NPS)
Dr. James Wirtz, Naval Postgraduate School (NPS)

PANEL PRESENTATIONS:

“US-Russian Collaboration on Ballistic Missile Defense in the Post-Cold War Era,” Capt Donald P. Lagator

The first panel presentation was given by Capt Lagator. It addressed the prospects for US-Russian collaboration on ballistic missile defense systems. In the author's view, the rise in potential threats from nations not traditionally viewed as possessing nuclear weapons presents new motivation for developing a protective system against ballistic missiles. Indeed, upwards of 25 countries in the world are known to possess ballistic missile technology, some of whose interests are not aligned with those of the United States. It has been proposed, therefore, that it may be time to pursue a cooperative effort with Russia in the development of a “peace shield” which could protect our countries from an attack.

Ballistic missile defense (BMD) efforts in the United States have been continuous almost from the point of the first test explosion at the Trinity test site. Initial efforts were hampered by inter-service rivalry between the Army and the Air Force. Ultimately, President Johnson, in 1965, directed Defense Secretary McNamara to proceed with an anti-ballistic missile (ABM) defense. Where Secretary McNamara directed ABM efforts be made to protect a city (notably Boston, the home of anti-ABM sentiment), President Nixon, upon entering office, directed that ABM efforts be focused instead at protecting US missile fields. However, the safeguard system was only briefly operational. When President Reagan introduced the concept of the Strategic Defense Initiative (SDI), ballistic missile defense received renewed attention. As the author notes, BMD has never been an issue of technical capability, but has instead been dependent on political considerations. In his view, President Reagan's initiative once again directed efforts where they should be: to the defensive realm. However, all paths to a BMD system ultimately converge at the ABM treaty, which limits the development of protective systems. Recent changes in the makeup of Congress have raised at least the possibility of a withdrawal from the ABM treaty. In the interim, efforts are being directed toward the development of a theater missile defense system which could be deployed in the field and provide an element of protection to either deployed forces, or conceivably deployed at home to protect against limited threats.

In Russia, efforts toward BMD saw more success than in the United States. Debate within the General Staff in the mid-1960s on the development of an ABM system led to the development of the Moscow defense system. This system remains the only operational ballistic missile defense system in the world. While debate on alternative ABM systems continued, concerns over Russian technological competency hampered any real effort at expanding their ABM capabilities. In the mid-1980s, Soviet writings began to suggest that directed energy weapons could provide some opportunities, even to the point of space-based platforms. However, no distinction was made between offensive and defensive capabilities. Indeed, one article made the assessment that laser and beam weapons could be made powerful enough to attack hard targets. Gradually, space was seen as an appropriate arena for the deployment of strategic forces, and for the deployment of orbital objects capable of carrying anti-missile weapons.

While each nation certainly could contribute to a "peace-shield partnership," there are considerable problems which would make such cooperation difficult. Perhaps the most notable, in the eyes of the author, is the concern over which technologies would be brought by each side. When the Soviet Union existed in its collective whole, it possessed a sophisticated network to detect the moment of launch of a hostile missile anywhere in the world. Following the collapse of the Soviet Union, however, many of the nodes of this network lie in newly independent states outside the immediate control of Russian military forces. Because of the gaps in this system, even the Russian Defense Minister has noted that they may sometimes be unable to conduct necessary observations by satellite contact outside of Russia for hours at a time. This has raised concerns in the US that Russia could possibly misinterpret US actions during a crisis, perhaps even to the point of launching a nuclear strike in the belief that an attack had been launched against them.

The sharing of sensitive technologies is also a concern for the US. It fears that these technologies could ultimately be transferred to third parties. In the development of Russia's free-market economy, the Russian military industry has become notably autonomous in their dealings outside of Russia. Unfortunately, many of Russia's 'friends' in the world—those to whom such technologies would be highly prized and who would be willing to pay considerable sums in order to acquire the technologies—are the very nations who harbor the greatest ill-will toward the United States. Given the uncertain stability of the Russian economy, there are also concerns that a precipitous decline in Russia's economic health could cause a return to near Cold War tensions.

Faced with these concerns, the US has every reason to be cautious when examining such a significant collaboration. In the author's estimation, the opportunities for cooperation at this juncture are too hazardous to be in the interest of national security. However, it does not preclude such efforts as may be necessary to develop a system within the United States.

“US Nuclear Nonproliferation Goals in South Asia: A Case for Reassessment,”
Maj Martin J. Wojtysiak

Maj Wojtysiak argued that the United States' non-proliferation policy for South Asia has badly miscalculated the region's positions and has made US policy untenable. He argued that instead of a regional policy, the US instead seems to concentrate most of its efforts on Pakistan because India was not a traditional ally of the West. In his view, the United States must overhaul its regional nonproliferation policy to redress previous mistakes.

The author identified three major problems that have handicapped the United States' approach to South Asia. The first is obstacles to negotiations. While India and Pakistan are viewed similarly to the US, it approaches each of them quite differently, and perceives relations with them as a zero-sum game. In fact, this ignores the significant role of China in the equation. While Pakistan and India view one another with distrust, India also must turn a cautious eye toward China. US policy does not always account for this important PRC influence.

A second problem lies in the lack of US policy evolution. Traditionally, the US seeks to prevent the spread of weapons of mass destruction. Failing that, it then seeks to contain the spread, and then to manage the situation as it exists. The author maintains that the US must move from the reactive prevention aspect of policy and take a more proactive role in the region to reduce the desire for weapons of mass destruction.

The final problem Wojtysiak identified is American political and diplomatic gridlock. While the US concentrates on passing laws governing our relationship with India and Pakistan (weapon sales, technology transfer, etc.), both nations take a more global approach to problems. Again, the author cites the wariness toward China as an example.

As a solution to the current situation, the author postulates a new regional nonproliferation regime. In doing so, he makes four general assumptions about the region:

- Nuclear weapons are a permanent presence in South Asia (for the foreseeable future).
- Nuclear weapons contribute a stabilizing influence in the region.
- India and Pakistan are not nuclear outlaws.
- Global approaches to nuclear nonproliferation (e.g., the Nonproliferation Treaty) don't succeed in South Asia.

For the proposed regional nonproliferation regime, the author suggests that the United States work to develop a bilateral regime between India and Pakistan, with the United States acting as a third-party participant. This bilateral agreement would include:

- A mutual, non-nuclear attack policy.
- Formal non-nuclear transfer policies.
- Development of functional confidence- and security-building measures (CSBMs).
- A nuclear “overtness” element.
- An agreement to cap fissile material production.
- A continuing framework of talks to maintain lines of communication.

The US would provide assurances to the other parties to lend aid in maintaining this regime.

“WMD Use Concepts and Command and Control Practices,” Dr. Peter Lavoy and Dr. James Wirtz

The final presentation for this panel was made by Drs. Peter Lavoy and James Wirtz. They provided an overview of their forthcoming book, *Planning the Unthinkable: Military Doctrines for the Use of WMD*. The project which fostered this book sought to improve the understanding of the military doctrines, operational plans, and command and control practices of states and non-state actors that recently have acquired (or are seeking to acquire) weapons of mass destruction. The authors conducted systematic comparisons of WMD behavior of the state and non-state actors most relevant to US national security. They used the following method of analysis:

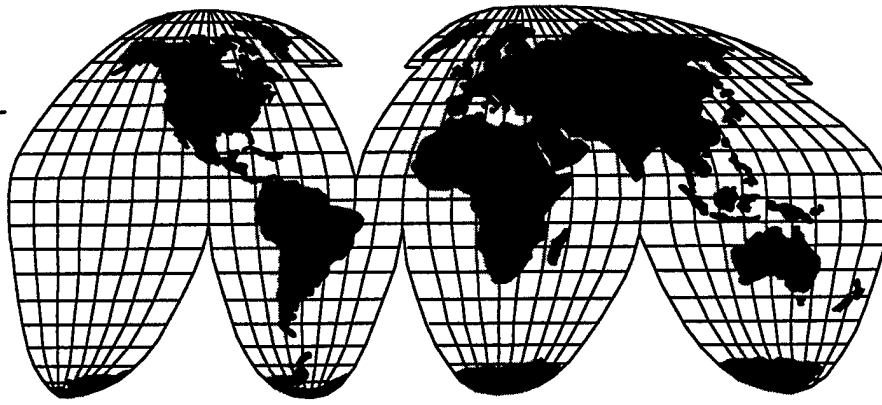
- Describe WMD capabilities of one state (or non-state actor).
- Describe the WMD policies and plans of the state.
- Describe the shifts in WMD capabilities and doctrines over time.
- Explain why the state (or NSA) in question has pursued the WMD capabilities and formulated the WMD policies that are observed.
- And consider the following causes:
 - External security threats.
 - Peacetime vs. wartime behavior.
 - Domestic policies.
 - Civilian-military relations.

The book will be multi-authored and will contain the following chapters:

- Early US Nuclear Doctrine and Command and Control.
- Russian Nuclear Doctrine and Command and Control.
- Saddam’s Strategic Arsenal.

- Iranian Approaches to Chemical Warfare.
- Nuclear Arms in Crisis Under Secrecy: Israel and the '67 War.
- China and WMD.
- India's Nuclear Use Doctrine and Command and Control.
- Pakistan's Nuclear Use Doctrine and Command and Control.
- WMD and Non-State Actors: The Rajneesh Cult Case.
- Poison's Potential: Why Terrorists Might Escalate to WMD.
- Democratic People's Republic of Korea: Motivation, Strategic Thought and Possible Employment of WMD.

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Panel 3.

Space Policy

Lieutenant Colonel Guy Walsh, Chair
Major David Levy
Captain Robert Klingseisen
Captain Robert Morrill
R. Chris Krance

1997 Research Conference

PANEL 3: SPACE POLICY

Chair: Lt Col Guy M. Walsh, National Defense Fellow, INSS

Participants: Maj David R. Levy, ACSC

CPT Robert E. Klingseisen, United States Army (USA), United States Military Academy (USMA)

Capt Robert D. Morrill, NPS

R. Chris Krance, GM-14, Air War College (AWC)

PANEL PRESENTATIONS:

“Space Operations for the 21st Century: A Functional Approach,” Maj David R. Levy

Maj David Levy opened the third panel with his paper on the centralization of military space operations. He argued that a single, centralized military space agency is the most effective and efficient approach for organizing space operations. In Maj Levy's view, present Air Force space doctrine and organizational structures are flawed in that they are based on an extrapolation of air power concepts based on traditional views that air and space are a continuum, and that one can smoothly transition from an air and space force to a space and air force. This has resulted in problems such as complaints of a lack of warfighter support, unresponsive launch systems, and confusion over roles and missions. As Maj Levy pointed out, space operations do not equate to air operations in another location. The most fundamental difference between the two is the environment in which they each operate. However, basic operational and political differences also exist. Maj Levy recommends that doctrinal and organizational changes be made in order to create more responsive space operations.

The author noted that many studies which include examinations of the role of space either have been done, are underway, or are planned. *Spacecast 2020*, *New World Vistas*, and *Air Force 2025* are three notable examples. Several basic points have emerged from these studies. They include:

- Greater reliance on space.
- Exploding proliferation.
- Increased microminiaturization.
- Lower access costs to space.

From these studies, and from his own research, the author proposes an organization of space forces in which the acquisition, space control and apportionment of scarce payload resources would be centralized in a single agency, but where the operations of non-strategic force enhancement space missions would be relegated to the joint warfighters.

“Commercial Communications & Remote Sensing Systems Susceptibility,” CPT Robert E. Klingseisen

CPT Klingseisen expanded the space policy discussion to defense of US space-based assets. He separated these assets into their two constituent parts: the space-based components, and their ground-based control systems. CPT Klingseisen noted that there are literally thousands of satellites present in space today, and the number is growing. These include:

- Earth resource satellites.
- Communications satellites.
- Positioning and Navigation satellites.
- Meteorological satellites.
- Defense satellites.

On the ground, control stations, monitoring stations, and launch facilities all are critical nodes in the network which comprise US space assets. CPT Klingseisen also made the point that the associated hardware and software which are incorporated into all components of space assets must be considered when discussing how best to defend US systems.

The defense of space-based components must consider not only directed threats from purposeful interdiction by hostile forces, but also natural forces as well. One of the greatest threats to satellites comes from the sun's radiation and magnetic emanations. Periodic massive solar events, or solar maximums, pose significant threats to the power systems of satellites as well as the sensitive electronic workings of these systems.

Another non-directed threat to satellites is the growing threat of space debris. Man first entered space forty years ago, and debris has gradually accumulated over time. Even minuscule fragments can cause significant damage to satellites. Moreover, Earth is continually bombarded by micrometeorites which also can damage anything in their path. A growing potential threat comes from directed physical attacks on space systems through anti-satellite programs. These range from anti-satellite weapons which seek out and destroy enemy satellites, to directed high-energy lasers and even electro-magnetic interference.

On the ground, communication and control centers are also vulnerable to attacks. Many sites, particularly those operated by the commercial sector, are not hardened against attack. In some cases, it is possible to walk within meters of a satellite communications dish, making it highly vulnerable to even the most rudimentary of terrorist weapons. Even military communication sites are not immune to attack.

The author concludes that US satellite systems are vulnerable, and that the US must bolster their survivability. Unfortunately, the means to do so are expensive, and in some cases beyond practical because doing so would make the satellites prohibitively large, and thus beyond the means of the US to place them in orbit. The author foresees an increased importance in access to commercial systems upon which the military can fall back when necessary.

“Direct Broadcast Technology in Bosnia: Impact on Decision Making Processes and Joint Endeavor Operations,” Capt Robert D. Morrill

Capt Morrill analyzed the direct broadcast technology employed in Bosnia and its impact on the decision-making process and Joint Endeavor operations. He explained that while the US has learned from its many communications short-comings in past operations, the fact remains that it has never had enough bandwidth to accommodate either the load of information, or the requests for that information in the field. The Department of Defense borrowed a page from the commercial sector in the area of Direct Broadcast Satellite technology to increase the amount of information available to the warfighter. Through the coordinated efforts of many commands, services, agencies and other organizations, the Global Broadcast Service program was initiated to provide a near-term increase in the military's wideband communications capabilities. A prototype of the GBS, the Joint Broadcast Service (JBS) was deployed as a major piece of the Bosnia Command and Control Augmentation system.

The author described the particular characteristics of the system, noting its small dish size and increased storage capacity among other characteristics. He described the capabilities of the system to manage information flow on a number of levels. The system is designed to be capable of “smart push/user pull” where up to 200 files per day were “pushed,” or fed, to users in the field while also providing the capability to request information directly. JBS also provided inter-theater broadcasts from CONUS to Bosnia, as well as intra-theater broadcasts. Information dissemination was initially advertised as ‘C4I to the foxhole,’ but is not yet to that level. It does provide a new tool for commanders and their staff. However, it was noted that there were times of information ‘flood’ and information ‘drought’ and that cultural differences and a lack of connectivity were sometimes issues of concern.

In analyzing the JBS, the author noted that there were limits to its effectiveness. It was pointed out the JBS is a “big pipe,” capable of transmitting large volumes of information. However, Capt Morrill noted that the volume of information is not the most crucial element of the JBS; rather, it is the effective use of that information that is most important. Another limit to the system is that it is a prototype, and is therefore restricted because it was not designed from the ground up to be a military system.

JBS was rapidly fielded (within 10 months), limiting the amount of time for proper testing. In fact, commanders felt in many cases that it was forced upon them.

Because of the rapid fielding, there was a lack of training on how to use and maintain the system, complicated further by the fact that personnel were on 60-90 day rotations which restricted attempts to create any knowledge base. Logistics were also a problem, particularly as there was no planning for spares or regular maintenance, and JBS was a low priority for shipment of new parts. Furthermore, no formal guidance was issued on its use, no single organization was given responsibility for it, and plans for its use varied widely.

From his analysis of the JBS, the author developed a set of lessons learned which should be applied to future systems. These are:

- Start small and do it right.
- Advertise the truth about the system, including its limitations.
- Be ready for changes.

If these can be applied to the follow-on to the JBS, information will be delivered to and applied usefully in the field, further augmenting the capabilities of the warfighters.

**“Launch Infrastructure: Critical to Evolved Expendable Launch Vehicle Success,”
R. Chris Krance**

Mr. Krance discussed the state of US national space launch infrastructure and its criticality to the success of the Evolved Expendable Launch Vehicle (EELV). He argued, given the emphasis placed on space operations in such documents as *Air Force 2025*, the United States is unprepared to meet future demands given its present capabilities and processes. Total US expendable launch requirements over the next 25 years will exceed the capability of the current infrastructure. This shortfall has national security implications if the US cannot replace defense, civil, and selected commercial payloads on its terms. To compensate, a revolutionary booster family, its processing and facility infrastructure must be designed and constructed to support demand. Only with a redesigned system can the challenge be met for the technological future.

One system identified as a possible solution is the EELV. This system borrows on the demonstrated success of the French Ariane class of launch vehicles which employ multiple integration sites per launch pad, unlike the traditional assemble-on-the-pad approach. The current approach is to bring the individual components to the launch pad, assemble them, launch the vehicle (assuming no problems prevent such a launch), and then prepare the pad for the next use. Following such procedures results in a 60-280 day turn-around per launch, during which no other vehicle can be launched from that pad, and the vehicle must be launched or disassembled and removed before another launch can take place. The French system used with Ariane assembles the launch vehicle in a separate facility and only places it on the launch pad approximately 9 hours before launch (for the Ariane V). If something goes wrong, the vehicle can be removed and another can

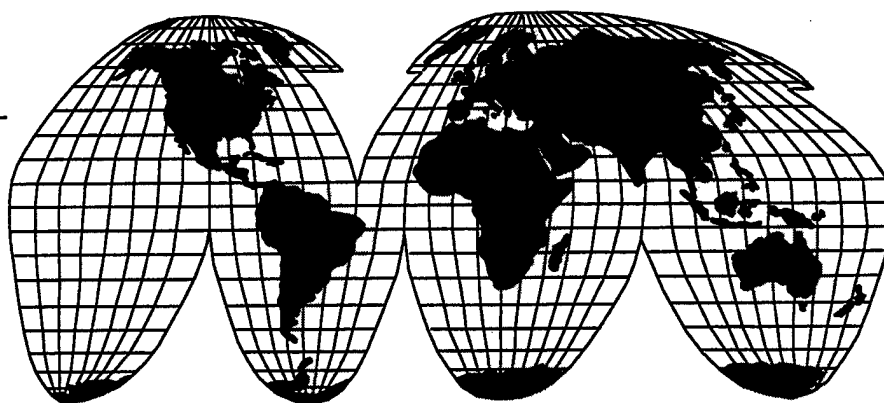
use the same launch pad while the first is being repaired. This launch process results in approximately a 22 day turn-around (30 days for the Ariane IV), a significant savings in time over the current US system.

In the author's opinion, if the US fails to develop a 21st century launch efficiency now, it will handicap its troops in the field and may compromise its national security as well. Future satellite replacements in times of conflict may hinge on days or hours, not the months required for the current processing procedures. Additionally, operational plans do not initially include the economy of joint funding with US commercial markets comprising nearly 50% of US launches and being contracted to foreign sources. The author concluded by stating that the thirty-year old system technology and infrastructures should be the number one priority for US modernization to meet space requirements for more than a generation to come.

PANEL DISCUSSION

The only question raised to the presenters was whether they foresaw a collision course between space policy and space arms control. All agreed that a collision was likely, and that this fact was being exploited by non-space powers as a controlling factor to limit further US domination of space.

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Panel 4.

Air Force Policy

Lieutenant Colonel Kurt Klingenger, Chair
Major Marguerite Palmer
Colonel (S) David Estep
Dr. James Smith

1997 Research Conference

PANEL 4: AIR FORCE POLICY

Chair: Lt Col Kurt J. Klingenberger, Office of the Secretary of Defense,
Strategy and Requirements

Participants: Maj Marguerite Palmer, ACSC
Col (S) David G. Estep, National Defense Fellow, INSS
Dr. James M. Smith, USAFA/34th EDG

PANEL PRESENTATIONS:

“Can Air and Space Power be Decisive Instruments of National Power?”

Maj Marguerite Palmer

Maj Palmer addressed the fundamental question of whether air and space power can be decisive instruments of national power. She defined the term decisive as being the only military instrument of power used, as achieving national security objectives for the conflict, and as having done so in a relatively short period of time. Maj Palmer foresees a future with more regional conflicts due to weapons proliferation, in which it will be important to know when air and space power can resolve conflicts globally, quickly, and with minimal casualties.

Maj Palmer's analysis covered four conflicts: World War II (both Germany and Japan), Korea, Vietnam, and Desert Storm. Each conflict was assessed to determine what airpower accomplished, what it could have accomplished, whether it was decisive, and why or why not. From her analysis, she determined that the concept of decisiveness consists of four factors:

- The enemy's cost of accepting US national security objectives.
- The enemy's perceived vulnerability to air and space attacks.
- The coerciveness of air and space instruments of power.
 - Effectiveness.
 - Cause-effect linkage.
 - Nature of the conflict.
 - Constraints.
- If the conflict can be ended in a timely manner.

As a result of her analysis, Maj Palmer developed several planning tools, such as a matrix and a flow diagram, which can be used to determine what future conditions might allow the delivery of effects resulting in the decisive use of air and space power. She concluded that while air and space power can be decisive elements in determining a conflict's resolution, it is important to know when the appropriate conditions exist for their use. Planning tools should be used to help determine these conditions.

“Joint Vision 2010: Focused Logistics and Air Mobility,” Col (S) David G. Estep

Col (S) Estep's presentation focused on the impact of the *Joint Vision 2010* study on focused logistics and air mobility. According to Col (S) Estep, it is understood that in the 21st century the United States will rely more and more heavily on CONUS-based forces that can quickly deploy throughout the world. The Joint Vision study proposes new operational concepts that will enable this strategy to be supported through rapidly deployable forces that are smaller and more agile, but also highly effective. He argued that this concept will require better logistics and mobility capabilities than available today, and that the military community is working toward these established goals. One fundamental concept to emerge from this study is the idea of focused logistics.

Operationally, focused logistics is the concept that will enable the military to deploy rapidly in response to a crisis, to track and shift assets as required throughout the theater, to deliver tailored packages directly to where they are needed, and to have them operational in a short period of time. In order for focused logistics to succeed, explained Col (S) Estep, it will be necessary for the logistics chain to reach across traditional boundaries and to rely increasingly on information exchange.

Initiatives are already underway to operationalize the concept of focused logistics. However, several obstacles must be overcome to achieve success. The old pipeline delivery system must be replaced with a newer closed loop system where retrograding is just as important as getting the material to the right place. Col (S) Estep argued that it must be recognized as well that this is a long-term effort, and that the process must be institutionalized if it is to work. It must break down existing barriers and develop new operational and logistical partnerships. He emphasized the necessity of embracing the need for maneuverability to supply goods where they are needed. Air mobility must make the decision to allocate resources and to learn to manage in real time. It must work to develop user confidence and to provide flexible options.

Col (S) Estep explained that the importance of the logistic tail to warfighting effectiveness is an established tenet, but the tail is growing increasingly long in today's world and certainly into the future. Forces will need to deploy at short notice to remote regions of the world, under diverse conditions and with myriad goals. The logistics capability of the United States must be able to support these future efforts in a timely and efficient manner. These requirements are not easy to achieve, and it will take a joint, coordinated effort with a long-term commitment to reach this capability. Col (S) Estep concluded, *Joint Vision 2010* provides the template, focused logistics is a key component of this template, and air mobility must provide the tools to make it possible.

“How Can the Air Force Develop a Coherent Service Identity?,” Dr. James M. Smith

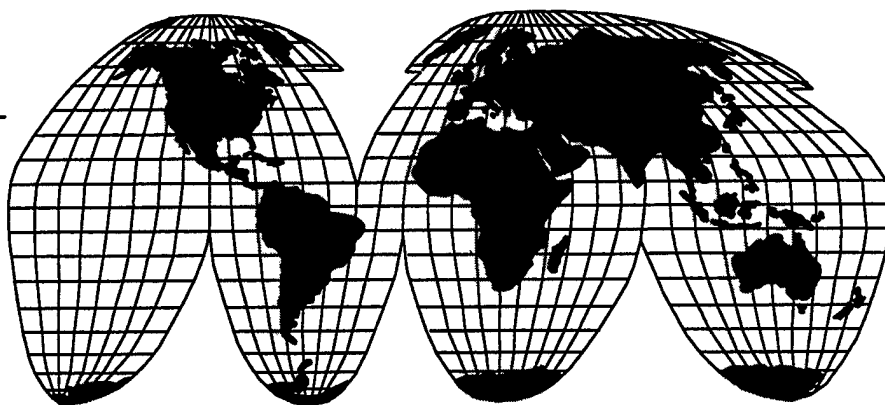
Dr. Smith concluded the panel presentations with an overview of his research on developing an Air Force culture and achieving cohesion among its personnel. In his view, the Air Force has a cohesion problem. It is rooted in the service's culture, subcultures and organizational dynamics. He analyzed the roots of this problem in an effort to identify a means by which the Air Force could draw itself into a cohesive force for the next century.

Dr. Smith pointed to the late 1980s, when the Air Force began to identify itself in terms of its technology, rather than itself. This resulted in a split centering around pilots and non-pilots, those directed toward space, and between the various systems flown by the pilots. The author noted that this division was recognized by a former Secretary of the Air Force, Dr. Donald Rice, who said that an overwhelming number of Air Force officers identified with their weapon systems rather than the Service. This was in direct contrast to the Army (who all fight together), the Navy (who sail together) and the Marines (who are all Marines at heart). Now, with the increasing role of space operations, another schism is developing which threatens to further divide the Service into ever increasing subordinate parts. To some, the Air Force has no strong, unifying mission or vision, so loyalty has devolved to functions, technologies and occupations.

As the basis for his study, Dr. Smith questioned students entering Professional Military Education (PME) classes at Maxwell AFB, Alabama. The results proved to be more encouraging than one might first expect, with indications given that there is a common foundation upon which to build a more cohesive Air Force for the future. One unifying factor is the high levels of education possessed by Air Force officers. Fully 60% of those surveyed possessed advanced degrees. The survey identified differences on institutional and organizational orientation based on rank, occupation, rating, PME completion, and joint experience. But the relative ranking of alternative missions, priorities, and allegiances indicated higher degrees of agreement. Notably, although there was fragmentation, those surveyed still identified themselves as Air Force officers.

In the view of the researcher, the USAF line officer corps provides a basic infrastructure upon which to build cohesion. He noted that it is a difficult process, and one that must be fostered from above. Dr. Smith asserted that a first step must be to define a clear mission and vision for the Air Force of the future, and that the leadership must actively disseminate this vision throughout the service in order for it to take hold and bring the service together. He also stated that the Air Force must realign its strategies and structures to fit this. Dr. Smith sees hope for the Air Force of the future, but the Service must actively work to develop this new cohesion.

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Panel 5.

Information Warfare

Lieutenant Colonel Greg White, Chair

Major Mark Nickson

2nd Lieutenant Valarie Weber

Lieutenant Colonel Cathy Dreher

Major Sue Carter

1997 Research Conference

PANEL 5: INFORMATION WARFARE

Chair: Lt Col Greg White, USAFA, Department of Computer Science (DFCS)

Participants: Maj Mark M. Nickson, ACSC
2Lt Valarie A. Weber, USAFA/DFPS
Lt Col Cathy A. Dreher, National Defense Fellow, Boston University
Maj Sue B. Carter, ACSC

PANEL PRESENTATIONS:

"Vulnerability of US and International Financial Markets to an Information Warfare Attack," Maj Mark M. Nickson

Maj Nickson presented a paper on the vulnerability of US financial markets to an information warfare (IW) attack. His thesis was that information technology has fundamentally changed US financial markets by increasing the efficiency of daily transactions, reducing the role of the traditional banker and broker, and enabling a whole new market in highly complicated derivative securities to thrive. However, this growth has also created a whole new list of potential targets to those who would attack the US National Information Infrastructure (NII). The US must therefore develop a multidisciplinary approach to protecting the NII.

Maj Nickson identified several vulnerabilities within the NII. While many such systems are isolated from one another, a byproduct of this isolation is that a great deal of uncertainty exists about how vulnerable the US information infrastructure really is. Because of a lack of reporting, even less information about weaknesses exists. In the past, significant security lapses have gone unreported out of a fear of illuminating weaknesses or vulnerabilities.

Some threats to the NII come from conventional means. Examples include bomb attacks like that conducted against the World Trade Center. Even though the bomb inflicted no significant damage beyond the garage level, the fire department shut off the power to the building, causing significant data losses by resident businesses. Today, non-conventional attacks garner most of the attention. These include hackers who break into computer systems through modem or Internet connections, disgruntled workers who perform "inside jobs," or programmers who deliberately sabotage systems through the use of "Easter eggs," or hidden programs.

To protect the information infrastructure, Maj Nickson suggested a multidisciplinary approach that combines technology, management practices, and policies. Technology provides some of the answers; firewalls already provide significant protection from outside attack. Protection from inside attacks could be provided by biometric devices that would allow access to computer systems only by authorized

individuals. Management practices provide many opportunities for protection. Examples include risk assessments, separation of duties, access controls, audit trails, written policies (with enforcement), written contingency plans, and crisis response teams. Government also plays a role through the requirement of 100% reporting of breaches in security or attempted infiltration of systems, establishment of a round-the-clock National Information Infrastructure center, cryptographic policies, and economic policies.

“Information Warfare and Corporate America: What Can the Military Learn?”

2LT Valarie A. Weber

2LT Weber discussed the relationship between information warfare and corporate America. The main thrust of her research was to determine whether the military can learn anything from corporate America's experiences with electronic intrusion. She organized her research around a single, fundamental question: are there any aspects of corporate America's information security strategy that can be applied to enhance Air Force defensive information warfare operations?

During her research, 2LT Weber found that 82% of corporations are connected to the Internet. Of those, 72% monitor their information systems for security purposes. She identified several important themes in her survey of corporate information systems, including:

- An organizational scheme.
- An organizational culture.
- Performance of risk assessments.
- Establishment of policies governing information security.
- Availability of incident response teams.
- Conduct of system security testing.
- Availability of training, and rewards for those who excelled.

According to 2LT Weber, the Air Force employed some of these themes as part of the Information Protection Barrier Reef program, a twelve step technical pathway to network protection. However, there is more to information protection than the technical aspect. 2LT Weber identified several areas where she believes cooperation between the military and corporate America could prove beneficial.

One area is Research and Development (R&D). 2LT Weber believes it would be beneficial to spread R&D costs among the parties, thereby enlarging the pool of funds available to exploit opportunities. She explained that the number of potentially valuable opportunities for research and development will always outgrow the available pool of government funds. By developing cooperative programs, the Air Force and corporate America can spread the resources farther than if either pursued them alone.

Another area in which 2LT Weber believes the military might glean valuable lessons from the private sector is in the arena of organizational culture. The Air Force must be aware of how organizational culture plays into its efforts at defensive information warfare. This includes an atmosphere that assigns information security a high priority, as well as rewarding good security efforts.

Training is a third area of opportunity. The authors believe that all Air Force personnel should be retrained to exploit defensive information warfare strategies and technology. This may include reorganization to more efficiently confront the threat. Finally, 2LT Weber offered that the Air Force must focus itself on a proper strategic goal. The synergistic combination of evaluation, security policies, training, organizational culture and technologies will only be effective if tested constantly and if the results are properly evaluated and applied.

"Information Warfare Concept and Its Potential Effect on Intelligence Collection," Lt Col Cathy A. Dreher

Lt Col Dreher examined the concept of information warfare and its potential effect on intelligence collection. Intelligence collection and production are heavily reliant on computer-based and electronic communications systems, and future warfare is likely to be directed against them. Lt Col Dreher stated that the US must dispense with the idea that it is invincible. Ninety-three nations in the world possess computer-based technology. Actors operating out of any one of those nations pose potential threats. Lt Col Dreher asserted that unity of the private and military sectors is essential to any US information infrastructure protection regime. She asserted that in order to establish a unified protection regime, the private and military sectors must bridge their long-standing communications gap.

According to Lt Col Dreher, the intelligence community will be called upon to provide much of the solution. They will need to make predictions of attacks, monitor capabilities and intents, select targets, and plan appropriate weapons usage. Lt Col Dreher argued that the intelligence community must use information developed from the US' role as a "victim" for educational and planning purposes. Of particular concern is the threat of data corruption which could skew resulting analyses. Lt Col Dreher noted, the intelligence community must review past experiences, analyze and develop psychological profiles, and determine vulnerabilities so that it can use this information to guard against future attacks.

Numerous targets do exist, both in the Department of Defense and in the civilian community. Financial centers, communication sites, transportation capabilities, and medical information all are potential targets. However, Lt Col Dreher noted that the US is actively involved in countering the threat. The Crisis Emergency Response Team (CERT) and the President's Commission on Information Protection are working to develop solutions to guard against information warfare attacks.

In conclusion, Lt Col Dreher recommends that the US derive a common information warfare language that can be used by both the government and the public in order to share information more effectively. She also recommends an increase in training and awareness within the public and DoD as to the threat and how to guard against attack. She suggests that the US identify foreign vulnerabilities and build databases as sources of information and to study the lessons learned from past experiences.

“Shot to the Space Brain: Vulnerability of C2 for US Space Systems,” Maj Sue B. Carter

Maj Carter presented an overview of the vulnerability of command and control of non-military space systems. Because of the increasing reliance on space systems, particularly on communications satellites, real concerns exist about the present security of these systems, and whether they could be protected in times of crisis. The United States military has increasingly relied on commercial satellites. It currently leases at least \$160 million of communication bandwidth from the commercial sector. According to Maj Carter, this is likely to continue for the foreseeable future. As a result, the security of these systems is of great concern to the Department of Defense.

Space systems can be divided into three constituent parts: the satellite, the command and control station, and the user. Because of the extreme cost and difficulty of intercepting satellites in space, they are relatively secure. The other two nodes, however, are more vulnerable. Most user nodes are soft targets, no more than typical commercial office buildings. Control nodes are usually only one control point to send commands, but may have remote stations which serve as transmission points. In Maj Carter's analysis, the command and control nodes are the most critical. The loss of a command node (particularly ones for which no redundant sites exist) creates a cascading failure of effect for the entire network.

According to Maj Carter, many commercial satellites require periodic communications with their ground control stations. If these communications are cut for an extended period of time, the satellite essentially enters a period of hibernation. If it is not programmed to wake itself from time to time to reestablish communications, the satellite may be lost. Many of the earlier communications and remote sensing satellites do not have this capability, and these same systems frequently have only a single command point from which to send instructions to the satellite.

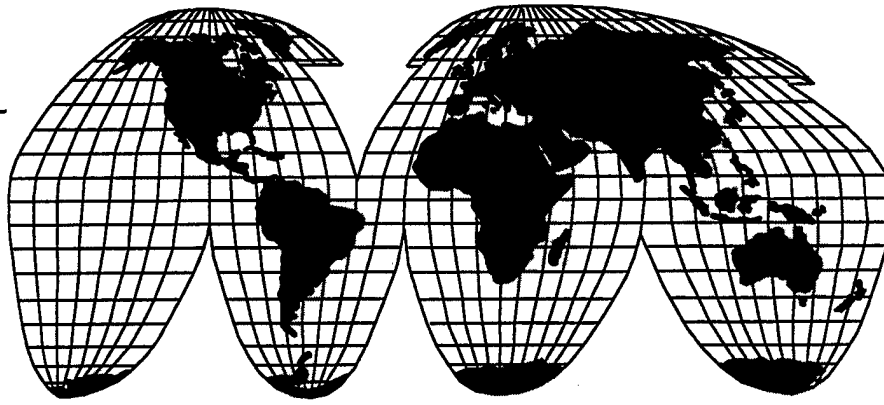
Maj Carter concluded that in order to increase the survivability of commercial systems, the US must adopt a “safety in numbers” approach. Redundant command centers should be established, and efforts should be made to provide some level of security at the ground sites to ward off attack. At the bottom line, however, profit motives are likely to drive the reliability of services upwards in the future. Commercial

and civil systems are more likely to solve vulnerability problems than they are to create them.

PANEL DISCUSSION

With time remaining to the panel, the audience posed several questions. One asked about whether realistic prospects existed for cooperation between the private and military sectors. In the view of the panel, corporate America actually sees cooperation with the military as opening itself to another vulnerability, so the prospects are not too bright. But, it was argued, that does not mean that the effort should not be made, because some benefit could be derived from even marginal cooperative efforts. Another point made by the audience regarding the advantage that corporate America has over the military is its development of a corporate memory. Particularly in the military, where rotational assignments are commonplace, it is difficult to develop an institutional memory which could be used to protect systems from vulnerabilities. Indeed, in the military, establishing a resume with many jobs is critical to moving up the promotion ladder. It may be to the military's advantage, therefore, to examine the possibility of longer-term appointments without sacrificing the individual's opportunities for advancement.

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Panel 6.
Regional Security (Asia)

Dr. William Berry, Chair
Captain Derek Offer
Colonel Peter Bunce
Major David Johnston
Professor Joan Johnson-Freese

1997 Research Conference

PANEL 6: REGIONAL SECURITY (ASIA)

Chair: Dr. William E. Berry, Jr., University of Colorado

Participants: CAPT Derek F. Offer, USN, National Defense Fellow, Harvard

Col Peter J. Bunce, National Defense Fellow, Harvard

Maj David J. Johnston, USAFR (JMIC)

Prof Joan Johnson-Freese, AWC

PANEL PRESENTATIONS:

“Iran: Is Dual Containment Working?,” CAPT Derek F. Offer and Col Peter J. Bunce

CAPT Offer and Col (S) Bunce opened the panel with a discussion of the US’ “Dual Containment” strategy for dealing with Iran. They reviewed its development, judged its successes and failures, and suggested a new “competitive strategy” for maneuvering Iran into a responsible role within the community of nations.

“Dual Containment” is the idea that the US can limit and isolate behavior that threatens US regional security interests in two neighboring nations simultaneously. It accomplishes this by strengthening its commitments to surrounding nations while condemning and countering belligerent behavior on the part of the two offending nations. The authors established three criteria for what constitutes a threat to US interests: first, a nation’s behavior constitutes a threat if it endangers the survival of the US or its key allies; second, a behavior constitutes a threat if it endangers critical US economic interests; and third, a behavior constitutes a threat if it poses the danger of a future nuclear threat.

With regard to Iran, dual containment was employed because of the belief that Iran and Iraq’s belligerent behavior threatened three key US regional security interests for the Middle East: 1) a lasting and comprehensive Middle East Peace; 2) security of key partners such as Turkey and Saudi Arabia; and 3) free flow of oil at reasonable prices. Iran threatened these interests in various ways. They included efforts to obtain weapons of mass destruction (WMD); support for terrorists and other groups that traditionally opposed a Middle East Peace Process; attempts to undermine friendly regional governments; and a dismal record of human rights abuses. Dual containment was born to motivate Iran to change its behavior in these key areas, while at the same time isolating Iraq.

The authors next detailed the history of dangerous Iranian activity that precipitated the containment strategy, including development of a chemical weapons program and state-sponsored terrorism. Iran’s chemical weapons program began in response to Iraqi chemical weapons attacks during the Iran-Iraq War. In 1987, the Iranian military first employed artillery to deliver mustard and cyanide munitions. By the mid 1990’s, Iran was known to have the most active chemical warfare program in the

developing world. The authors reported that the Iranian chemical weapons stockpile is estimated to exceed 2,000 tons of mustard gas blistering agent, cyanide-based blood agent, phosgene choking agent, and the nerve agent, sarin. With regard to terrorism, Iran is known to have been responsible for nine separate terrorist incidents in the Middle East and Europe between 1990 and 1996, including the murder or attempted murder of twelve persons.

Dual containment, according to the authors, was somewhat successful. By 1995, Iran's arms imports were down 50% from 1992. The US engineered the Wassenaar Arrangements—agreements with 30 governments to prevent the acquisition of arms and dual use technologies. In addition, isolation of Iran increased when the European Union and Canada recalled their ambassadors to Iran. Finally, as of 1996, the US intelligence community possessed no credible evidence to suggest that state-sponsored terrorist organizations had obtained contraband nuclear materials. However, alarming failures suggest the need for a new strategy. Those failures include: Russia's nuclear reactor contract with Iran; China's "peaceful nuclear cooperation" with Iran; Iran's continued sponsorship of terrorist organization; continued anti-US rhetoric; and the Fatwa (death-contract) on the head of Salman Rushdie.

CAPT Offer and Col Bunce postulated that the near equal number of successes and failures under the Dual Containment strategy proved that it functioned only as a holding action, and that a new, "competitive strategy" was needed to successfully counter Iranian threats to US regional security interests. In their view, such a strategy must be grounded in the realities of modern Iran and must contain a tier prioritization of vital concerns. The dual containment strategy did not account for the "winds of change" in Iran—the conflict between anti-US hard-liners and pro-Western politicians, or the changing of the guard signified by the election to the presidency of a pro-Western cleric. Moreover, the dual containment strategy did not prioritize its goals. The authors suggested a "competitive strategy" that consists of 6 steps: 1) deny Iran nuclear weapons manufacturing capability; 2) take collective action on terrorism; 3) prevent the resurgence of Iraq; 4) deny Iran the capability to manufacture or import weapons delivery systems; 5) engage Iran in an incremental dialogue; and 6) encourage Iranian pragmatists and youth. The authors concluded their presentation with a quote from Anthony Cordesman that summarized the thoughts behind their strategy: "US policy must be the art of the possible, not the posturing of the impractical."

"The Threat to US Forces Associated with a Reunified Korea in 2012,"
Maj David J. Johnston, Joint Military Intelligence College

"If the demilitarized zone (DMZ) across the Korean peninsula stopped being the most heavily defended border in the world before the year 2000, what will Northeast Asia be like in fifteen years, and what threats would there be to the national security interests

of the United States?" Maj Johnston discussed these most timely and pressing questions, as well as possible answers, during his presentation to the panel.

Northeast Asia consists of six nations: Japan, China, Russia, the Koreas, and because of various military alliances, the United States. Maj Johnston assessed each nation and concluded the following: economic stagnation and political instability plague Japan; China has extended its economic influence throughout the region and is acknowledged by other nations to be the region's "leader," or in the language of some, "hegemon." Russia remains crippled by the disintegration of the former USSR; South Korea, after experiencing economic growth and expanded political freedoms, now struggles with internal conflict and political instability; North Korea teeters on the brink of self-destruction; and the United States flourishes in the midst of massive economic growth.

For the past two centuries, the US has maintained a presence in northeast Asia to protect four major interests: regional peace and security, commercial access to the region, freedom of navigation, and prevention of the rise of a hegemonic power or coalition. For over thirty years, the US has protected these interests by guarding the DMZ between North and South Korea. As starvation, depletion of fuel resources, and a 75% decline in its economy threaten North Korea's very existence, most experts agree that the region will experience some sort of climactic event in the next fifteen years. Maj Johnston suggested, innumerable scenarios exist for resolving the Korean peninsula stalemate. All, however, generally fall into one of four categories: implosion, confederation, separate trading partners, or war. By examining present regional trends, Maj Johnston extrapolated to the future.

The most likely scenario for the future, according to Maj Johnston, is Korean reunification. He noted that as North Korea implodes, its army will disintegrate. Without the threat of a huge North Korean army poised for attack above the DMZ, the border will lose much of its strategic value. The Koreas will reunify, with effects "rippling far from the peninsula." Maj Johnston likens the obsolescence of the DMZ as being like the fall of the Berlin Wall. Reunification, he said, "would affect international economics, the Taiwan question, territorial disputes, cultural animosities, exaggerated nationalism, and resurgent religious fervor."

Maj Johnston stated that the results of that giant ripple will be the following: a reunified Korea will be stabilized and growing; Japan will be in the midst of an economic upswing; China will be struggling with a stalled economy; Russia will turn its focus to Europe; and the US will struggle to maintain its world dominance. Such a world in 2012 would pose a threat to US interests that consists of four major components: growth of Chinese military and economic power; conflict among US allies; trouble in the Middle East; and trouble in Southeast Asia.

"The Chinese Space Program: A Mystery Within a Maze," Prof Joan Johnson-Freese

Prof Johnson-Freese presented an overview of her book on Chinese space policy in the context of its political system. She began by stating that the Chinese policy system is extremely complex because of a variety of historical and cultural factors. In addition, the Chinese have in the past deliberately exacerbated its complexity for the sake of discouraging outsiders from "peering in." This "exacerbated complexity" has indeed discouraged thorough analysis of many Chinese policies. Prof Johnson-Freese stated that her book will be the first unclassified, comprehensive analysis of Chinese efforts in space. Its purpose, she stated, is to "simply explain" Chinese efforts in space in the context of China's "complex" political system.

According to Prof Johnson-Freese, China's development of space-based capabilities rests at a precarious point. As a result, careful analysis ought to be conducted where "constructive inroads might be made concerning space in moving China toward a more acceptable position on the international spectrum." All the while, the US must be mindful of China's internal needs and objectives. With that in mind, Prof Johnson-Freese suggested the US ought to pursue those areas vigorously.

Prof Johnson-Freese identified three policy areas in which the US might make such "constructive inroads": reciprocity, international cooperation, and legal aid. She opined that ideally, these areas would be pursued sequentially, beginning with legal aid and ending with international cooperation.

Two aspects of Chinese culture combine to make US dealings very difficult. First, the Chinese pursue a philosophy known as "Guan Xi". This translates to the Chinese doing what they want, and leaving others to "live with it." Second, the Chinese have no comprehensive legal system. Yet, foreign as the concept of no legal system is to the US, the situation is not without hope, according to Prof Johnson-Freese. The Chinese have stated that they want a legal system, but that as a developing nation, they have not achieved it. The US, with a system based on the rule of law, possesses the necessary system and resources to assist the Chinese. Prof Johnson-Freese believes the US should export legal aid to China to bring it into the "family of nations."

With regard to reciprocity, Prof Johnson-Freese posits that the US gives away too much to the Chinese. Instead, the US ought to develop a list of priorities, inform the Chinese (facing the issue squarely), and then trade off from that list (we want, they want...). The biggest hurdle to such efforts would be development of US priorities. Currently, the US has 10 "Number One" priorities.

Finally, Prof Johnson-Freese suggested that international cooperation in the area of space policy could have positive results when dealing with the Chinese. The Chinese place great importance on internal stability and maintaining "face." This prevents them

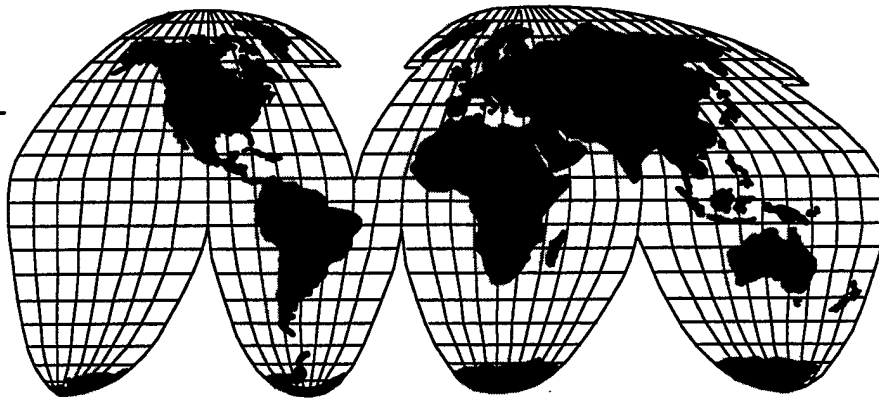
from taking the lead in many policy areas, including space policy. The Chinese will follow, however, if someone else offers to lead. This could lead to the development of new technologies, or positive uses of existing technologies. In addition, the US and other nations could "guide" Chinese space activities. The author suggests that Canada could guide Chinese activities in the area of space science, while Europe and Japan could guide Chinese activities through the sharing of launcher and Ariane technology. The US could guide Chinese activities through the use of satellite licensing agreements. By doing so, the US would gain near-term capital, while the Chinese would get jobs and communications capabilities. Both of these would contribute to China's internal stability.

Prof Johnson-Freese concluded that Chinese policy-makers "walk a tightrope necessary for internal stability." They thus move slowly, methodically, and cautiously. The US must respect this, and therefore must engage in a system of "nudges." The US must nudge the Chinese from static (no movement, or intransigence) to stable policies. Above all, the US must not act in such a way to encourage instability within China. Such destabilization would be dangerous and almost certainly encourage China to retreat into its shell.

PANEL DISCUSSION

A participant asked Maj Johnston to identify the future for US military presence in a unified Korea. Maj Johnston explained that if the unification process is peaceful, US military presence will be minimal. A complete withdrawal of US forces is unlikely in order to maintain the balance between Korea and Japan. Another participant asked whether a US-China conventional land war were possible. Maj Johnston responded, such a confrontation would be very unlikely.

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Panel 7.

Regional Security (Russia)

Colonel (S) Paul Selva, Chair
Dr. Jacob Kipp
Lieutenant Colonel Brenda Vallence
Professor Roman Laba

1997 Research Conference

PANEL 7: REGIONAL SECURITY (RUSSIA)

Chair: Col (S) Paul Selva, Office of the Secretary of Defense/Net Assessment (OSD/NA)

Participants: Dr. Jacob W. Kipp, Foreign Military Studies Office (FMSO)
Lt Col Brenda J. Vallence, USAFA/DFPS
Prof Roman Laba, NPS

"Alternative Russian Futures and Their Implications for US National Security," Dr. Jacob W. Kipp

Dr. Kipp opened the panel by explaining that while Boris Yeltsin's election in 1996 was a personal triumph for him and a resounding victory over a return to Communism, it did not resolve the issue of Russia's future path and the question of its national security policy. Dr. Kipp noted, President Yeltsin's health seems to be a constant question in today's news, and it has become evident that growing numbers of fundamental policy disagreements both with the Duma and within Yeltsin's own administration threaten to weaken the relatively fragile Russian democracy.

In the past fourteen months, Russia has had three ministers of defense and three chiefs of the General Staff. In light of this present instability and uncertainty about Russia's future, Dr. Kipp discussed possible scenarios and their implications for US national security. In doing so, Dr. Kipp identified three key factions which could hold the key to Russia's future, and thus the future of US national security policies toward Russia.

Dr. Kipp first identified the "old bear," or the moderate-conservative faction. It has the limited goal of establishing Russia's credibility as a great power in the international community. It supports gradual reform while favoring protection of the large firms. Furthermore, it is viewed as being willing to work with the US, but it will work with other countries as such cooperation suits its needs.

The second faction Dr. Kipp identified was the "young wolves" faction. This has been the strongest movement of late. It is characterized by its view that the current crisis in Russia will only be overcome by a new round of intense reforms to complete the process of marketization and privatization in favor of the economic interests of the entrepreneurial class. It wants Russia to join the ranks of the leading capitalist powers and has shaped its foreign and security policies to achieve this goal.

Finally, Dr. Kipp identified the "Party of Internal Order," which has emerged out of Yeltsin's own group. It emphasizes the linkages between sources of instability within Russia and external powers and movements. Its members do not want any compromise on Russia's sovereign borders, and they see any yield on this point as the end of Russia.

According to Dr. Kipp, the opposition divides into those seeking to preserve and strengthen Russia's democratic experiment, an open society, and a market economy to those interested in a repudiation of the movement. The liberal opposition, the Yabloko, sees Russia's future bound up with integration into the global economy and wants to establish a set of checks and balances on executive authority to prevent further abuses of power. The nationalist-populists, led by General Lebed, want an authoritarian program to end the disorder in the state and to protect society from bureaucratic corruption and organized crime. They also want a national security policy in line with their limited resources.

The nationalist-communist opposition is committed to a break with the current experiment with reform and want a restoration of the Union. Most importantly for US national security interests, they are ideologically opposed to the US and the West and see Russia as a natural check to the US hegemony. Other opposition groups include the Liberal Democratic Party of Russia, and movements in support of the Army, defense industry, and military sciences.

Dr. Kipp stated that forecasting future Russian political situations is difficult because it is hard to define the alternative possibilities on top of analyzing the current, fluid situation. Part of the problem is that the US does not see particularly mature parties or institutions. Therefore, predicting their actions is very difficult, if not impossible. Should one of these other groups assume the Presidency, it will be interesting to see what it does with a Russian Constitution that was essentially tailored for one man—Boris Yeltsin. To that end, Dr. Kipp explained that it seemed prudent for the US to actively work to continue Russia's moves toward greater democracy and a free-market economy, while at the same time recognizing the severe costs that the present societal disorder, corruption, and crime are placing on Russia. He identified the recent Paris agreement granting Russia's special relationship with NATO as an important forum in which to work toward this goal.

“Russian Military Security Issues and the Implications for US Policy,” Lt Col Brenda J. Vallence

Lt Col Vallence's research examined the neotraditionalist thinking in the Russian military. This thinking is characterized by personalistic practices, quantitative rather than qualitative measurements of success, and secrecy. She argued that the result of this “old” thinking is that the Russian military has been unable to define a new identity as a military in a post-socialist system. Lt Col Vallence described the Russian military as “old goats” who, supported by Russian society, hold on to old ideas. While other Russian ministries have adapted to the new Russian system, the military stridently fights against their own change. As an example, Lt Col Vallence noted, while most senior Russian military leaders are not even certain of how large the military currently is, they don't want to make any reductions in numbers, despite any positive outcomes that might result.

Lt Col Vallence also noted that the Russian military lacks a guiding plan. Past goals of offsetting Western expansion or posing a deterrent to external actions are no longer relevant in today's post-Cold War world. However, no new goal has emerged, and the Russian military has been slow to define a new goal for themselves. Instead, the military is seen as a personal tool of senior leaders, with forces used in some instances for non-military roles. For example, some senior leaders use troops under their command as personal security forces. This also has given rise to new levels of corruption within the military. The concern, as cited by the author, is that ultimately the US may be faced with twenty or more different forces within Russia, many of whom are or will be internally oriented, with little coordination between the factions, and a continuation of the militarized society. This threatens to create a potentially dangerous situation for Russia as a whole, and it certainly poses problems for the United States as it attempts to develop a policy toward Russia.

In conclusion, Lt Col Vallence stated that there is very little policy that the US can make that will affect these events in Russia. The US must recognize the role of the other power ministries and realize that it is not just the military role anymore. She also argued that the US must change its analytical paradigm, because its tenets no longer apply. The US also must recognize that in some instances, some of the posturing it observes may be for internal consumption only, and it must guard against overreacting.

"The Russian Cossacks: A Four Million Man Military Force and the Russian State Today," Dr Roman Laba

The final panel presentation was made by Dr. Laba on the reemergence of the Russian Cossacks as a significant force in Russian society and in Russian politics. According to Dr. Laba, since 1990, the Cossacks have emerged as the largest social movement in Russia, with a concentration around South Russia, but spread throughout the Commonwealth of Independent States and the Baltics. The Cossacks bring with them a set of incredibly complex issues, compounded by the fact that approximately one million of them have been integrated into the Russian military. The Russian government has recognized the potential threat raised by an armed mass movement by several million Cossacks, so no less than three separate levels of the Russian government (the President, the Parliament, and the Krasnodar Province) have each attempted to resolve the Cossack question. Each of them failed.

Dr. Laba explained, President Yeltsin tried to integrate the Cossacks into his personal sphere by creating a little-noticed praetorian palace guard under his direct authority. However, to the Cossacks, Yeltsin offered too little, so many refused to join his force. The question that remains is how the extra-constitutional security order which created this force will play in the post-Yeltsin period.

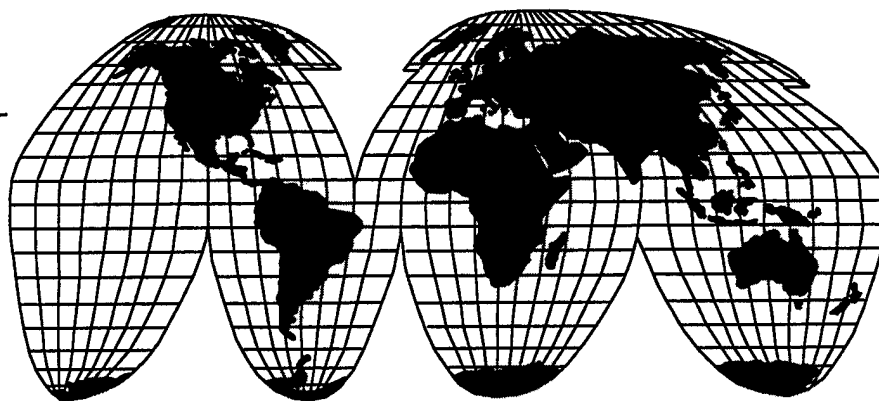
From March to June, the Parliament voted three times on a law to supersede Yeltsin's decrees and plans, said Dr. Laba. This law went far toward creating a semi-autonomous and centralized Cossack security force linked to an anti-Yeltsin opposition. This law failed in the higher house, but it may reemerge.

Finally, the Krasnodar Province tried to set up its own Cossack army. Dr. Laba noted that President Yeltsin signed a decree in August abrogating the province's decrees, but he did not dare seek to suppress the Kuban Cossacks, the largest and most well organized Cossack faction. As the author noted, this was an amazing example where a province moved against Russia's centralized government, and it holds ominous implications for Russian security.

The author's research revealed an independent effort to resolve the Cossack question separate from the three mentioned above. This effort focuses at a local level, where regional security forces are entering into agreements with Cossack forces and communities. This seems to indicate that Russian security forces are becoming more localized, with promises made of local service for recruits. This raises the serious question, posed by the Lt Col Vallenge, of who these forces will obey in times of crisis, particularly regional crisis.

PANEL DISCUSSION

With but a little time remaining in the session, few questions were presented. One, however, dealt with the question as to whether the sister base exchanges have had any impact that the researchers could tell. Their response was that it is hard to find equivalents in the exchanges, but the General Staff does not seem very enthusiastic about military tourism.



Panel 8.

Regional Security (Africa)

Major Deborah Shackleton, Chair
Colonel Dan Henk
Lieutenant Colonel Karl Prinslow
Ms. Stephanie Brenninkmeyer

1997 Research Conference

PANEL 8: REGIONAL SECURITY (AFRICA)

Chair: Maj Deborah A. Shackleton, USAFA, Department of History (DFH)

Participants: COL Dan Henk, USA/AWC

LTC Karl E. Prinslow, FMSO

Ms. Stephanie D. Brenninkmeyer, JMIC

“Improving the Conduct of Military Operations Other Than War in Africa,” COL Dan Henk

COL Dan Henk opened the panel with his presentation on improving the conduct of military operations other than war (MOOTW) in Africa. He noted, humanitarian relief and peace operations have garnered most of the attention, but military relationships and activities, for example, are of greater long-term significance. While these have been generally successful in the past, the United States can take several steps to enhance their effectiveness significantly.

While there is often disagreement on the issue, America does have regional interests in Africa, according to COL Henk. Some of these interests include:

- Regional stability.
- Access.
- Information and warning.
- Safety of American citizens abroad.
- Safety from weapons of mass destruction.
- Comity and cooperation.
- Safety from transnational threats (e.g., disease, terrorism, crime, etc.).
- Regional freedom from egregious suffering.
- Proper governance.
- Unthreatened natural environment.

COL Henk explained that in Africa, the United States has used its military in some of these regional interests, but not all. Of seventeen distinct “operations other than war,” the US has been involved in five of them in Africa. Nation assistance is where the US has participated most often. The primary conduit has been the US’ international military education and training efforts. However, COL Henk noted that problems are associated with this program. It is difficult to manage, and it lacks certain flexibility. Long-range planning is also difficult, and it generally involves small programs. Perhaps the greatest problem is the language barrier. Because of Africa’s colonial roots, French is the predominant language throughout many of the regions.

Another area of active US involvement is non-combat evacuations. COL Henk said that half of all US involvement in Africa since 1980 has been in non-combat

evacuations. Unfortunately, it is also an area where the Africans feel threatened because of the high visibility of military forces in an already tense environment. Peace operations also have included US involvement, but not as often as many would like, offered COL Henk. Indeed, the US often is criticized for its non-participation and also for its non-payment of dues to the UN, which in part funds such operations. The US does send aid for humanitarian efforts, but COL Henk pointed out that this is a reactive involvement which generally is less effective than working to prevent the initial problems.

Biodiversity programs where the US has worked to improve the environmental conditions of the region have only been funded twice in the past, and no studies have been done to measure their success, offered COL Henk. In general, the US expects the African military entities to assume the environmental mission for themselves. A final area of US involvement is in special missions to the regions, e.g. distinguished visitors and congressional delegations. COL Henk explained that while these can have beneficial results, many nations view them as a nuisance; they can overwhelm a country and seem to emphasize the "nice" countries over others.

COL Henk concluded that existing policies protect US interests fairly well, but that room exists for improvement. He identified a lack of regional national security goals on the part of the US as a primary problem. He also noted that the US military has divided Africa between four regional commands, and suggested that it should have one regional command for the entire continent. COL Henk also suggested that the US should work to increase the number of Africans attending the senior US command colleges and that the US should emphasize humanitarian exercises. Finally, COL Henk offered his final suggestion was for a new paradigm: Consultation, Consensus, and Cooperation.

"Future Security Assistance Policy and Programs for Africa," LTC Karl E. Prinslow

LTC Prinslow discussed US future security assistance and military cooperation in Africa. His assessment was that the US will see better relations built upon the conduct of combined training, and not on future transfers of funds or equipment. LTC Prinslow noted that the US has a lack of credibility with some African nations because past aid programs have been curtailed or canceled. The unpredictability of this aid has caused some to question our commitment to the region. In addition, US direct aid is likely to decline in the coming years, if not stop altogether, said LTC Prinslow. In part, this may alleviate another of the problems; the sense of dependency on US aid felt by some of the African nations.

In approaching this subject, LTC Prinslow stated that several assumptions would remain true regarding DoD activities in Africa:

- The military will remain important to the execution of US foreign policy.

- There will be no more direct military aid for Africa.
- The administration will continue to seek coalition, regional organizations and burden sharing in lieu of unilateral US commitment.
- The US military will remain "engaged" in Africa.

According to LTC Prinslow, African interests focus on training, not weapons. They see these exercises as providing many benefits, and they also seem to recognize that the US cannot do it all. New methods to cooperate with African militaries should enhance training value at a minimal cost. LTC Prinslow proposed that the US adopt a policy of "Military Cooperative Activities" as its new approach to the region. This policy must emphasize mutual respect and cooperation as equal partners in mutually beneficial activities.

The US should also increase host nation contributions and ownership, and balance its contributions accordingly, suggested LTC Prinslow. He also recommended the US work to integrate South Africa into its exercises. Furthermore, LTC Prinslow noted, the absence of a comprehensive and consistently followed strategy for US military activities and interests in Africa does not contribute to improved relations except in those countries which are recipients of the ad hoc application of military cooperation activities. The African Crisis Response Initiative can provide a focus and direction to training exercises with African militaries that are currently missing in US military strategy for Africa.

"Options for Conflict Resolution in Sub-Saharan Africa," Ms. Stephanie D. Brenninkmeyer

Ms. Brenninkmeyer concluded the panel presentations with her discussion of how the US could work toward an African crisis response capability. While an ideal situation would allow the United Nations to lead this effort, the UN has neither the capability nor the resources to undertake such a responsibility, explained Ms. Brenninkmeyer. Therefore, the question must be asked, "Who will lead the capability formation effort?"

According to Ms. Brenninkmeyer, the US clearly faces a peacekeeping environment that has changed significantly since 1980. This change is due primarily to the limited pool of funds to support foreign operations. The US also has seen a lack of options over the years for conflict resolution. The turning point, according to Ms. Brenninkmeyer, came in Rwanda in 1994, and it has forced the US to look for new options. She sees these new options as being supplied by UN stand-by arrangements, the African Crisis Response Initiative (ACRI), and greater burden-sharing by the other nations of the world.

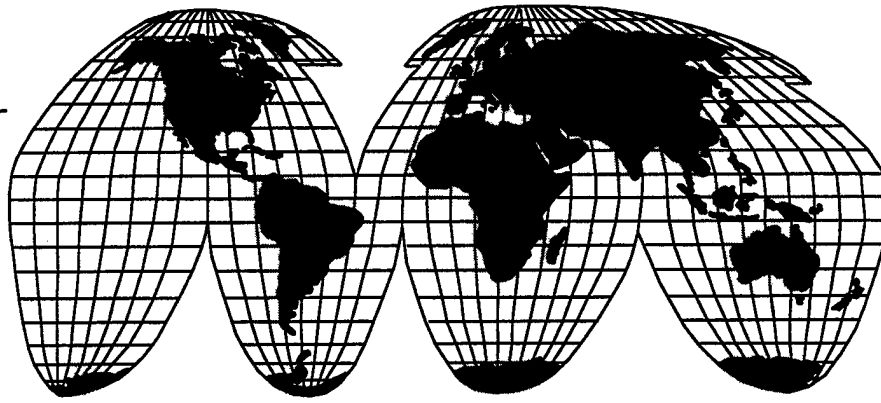
According to Ms. Brenninkmeyer, the UN stand-by arrangement would meet a need for on-call capabilities. Currently, each crisis situation calls for its own set of plans, with assets being culled from the UN member-states. Ms. Brenninkmeyer argued that the

UN needs its own stand-by capabilities which could respond more rapidly to a crisis. This capability would of necessity be dependent upon the member-states' capabilities, and also the willingness of states to release control authority of some of their equipment and the personnel to operate them. Africa's lack of peacekeeping capability has led to the formation of the ACRI, established by the United States and sanctioned by the UN. This program is an effort to bring US resources to African military entities in order to enhance African peacekeeping capabilities. It focuses on training and on long-term involvement. It is expected that the ACRI will work closely with other international partners to ensure that peacekeeping training in Africa is standardized, and donor nation equipment is compatible. It is hoped that by increasing Africa's own internal peacekeeping capabilities, the Security Council and regional organizations will have more options for conflict management.

Ms. Brenninkmeyer pointed out that conflicts are not generic, and therefore US solutions for them cannot be either. These suggested trends cannot themselves be seen as a panacea, but must be viewed as a step in the right direction.

PANEL DISCUSSION

There was only one follow-up question for the panelists posed at the conclusion of the last presentation. This question dealt with the ACRI and noted that the US has not yet established peacekeeping forces. Therefore, are we asking the Africans to do something we ourselves are not yet doing? The answer was that some African countries have declared some forces as being dedicated to peace-keeping operations, but we have not progressed to that point.



Panel 9.
Regional Security (NATO)

Mr. Oleg Ivanov, Chair
Major MaryBeth Ulrich
Professor Robin Dorff
Lieutenant Colonel Peter Liotta

1997 Research Conference

PANEL 9: REGIONAL SECURITY (NATO)

Chair: Mr. Oleg Ivanov, INSS

Participants: Maj Marybeth Ulrich, USAFA/DFPS

Prof Robin H. Dorff, Army War College

Lt Col Peter H. Liotta, Naval War College

PANEL PRESENTATIONS:

“Russia, Its Neighbors, and an Expanding NATO,” Maj Marybeth Ulrich

In November 1996, the Council on Foreign Relations created a task force to study the pursuit of NATO enlargement without irreparable harm to US-Russia relations. As a member of that task force, Maj Ulrich was intimately involved with the study and gained considerable insights. She presented to the panel an overview of the task force's key findings, provided insight into the consensus-building process, and outlined the development of the issue since the issuance of the task force's report in June 1997. In addition, Maj Ulrich addressed some of the challenges that lie ahead as the US leads a post-cold War European security program focused on the twin goals of enlarging the democratic zone in Europe through NATO enlargement and playing a facilitating role in the consolidation of democracy in Russia.

According to Maj Ulrich, the task force made several recommendations. First, it recommended that new members should be invited to join NATO at the Madrid Summit in July 1997. The task force attached a condition to this recommendation—that no new members be admitted as “second-class citizens,” but rather as full and equal partners. Second, it recommended that the door be left open to the prospect of inviting additional members into NATO. Third, the task force agreed that neither combat troops nor nuclear weapons should be deployed in the newly admitted nations. The task force believed that to deploy either might antagonize Russia.

Maj Ulrich added, the task force agreed that NATO enlargement need not be viewed as an attempt to threaten, isolate, or weaken Russia. Rather, NATO enlargement offered an opportunity to improve relations with Russia. She noted that the task force proposed a “Russia-NATO Charter.” This charter would consider Russian interests and would establish a framework for Russia's relationship with NATO. However, the task force also warned against allowing Russia to exercise undue influence over NATO enlargement. It offered as an example Russian attempts to exercise a veto over the membership aspirations of the Baltic states and the Ukraine. The task force further suggested that a separate NATO-Ukraine agreement be negotiated in order to clarify the relationship between the Ukraine and the alliance.

Maj Ulrich discussed some of the counter-arguments that arose during the consensus-building process and highlighted the dissension which exists among

Administration officials, academics, journalists, and military policymakers over the issues surrounding NATO enlargement. She reported, heated debate arose over such issues as the changed defensive character of the alliance, ever-expanding NATO membership, whether or not multiple stages of enlargement should occur, the role of NATO as an instrument of European integration, and the terms of the NATO-Russia Charter.

Finally, Maj Ulrich explored some of the developments that occurred since the task force issued its report. Among the topics she discussed were the final terms of both the NATO-Russia Charter and the NATO-Ukraine Charter, the events of the Madrid Summit in July 1997, and the prospects for treaty ratification in the US Senate.

“A New and Larger NATO: A Vehicle for Promoting US Arms Control and Nonproliferation Objectives,” Prof Robin H. Dorff

Prof Dorff opened his presentation by stating, neither nonproliferation of nuclear, chemical, and biological (NBC) weapons, nor conventional arms control have ever been central to NATO policy. He explained that this was due primarily to the original NATO focus on collective defense, which sometimes focused on proliferation, rather than on nonproliferation of weapons. Prof Dorff explained, as the focus shifted from collective defense to collective security, nonproliferation and arms control remained on the periphery of NATO policy.

Prof Dorff noted that the lack of attention paid to nonproliferation was compensated for by the US nuclear guarantee to all NATO members, and that all NATO members were parties to both the Nonproliferation Treaty (NPT) and the Conventional Forces in Europe (CFE) treaty. However, he explained that NATO enlargement may drastically change this set of circumstances. Several potential new members belong to neither the NPT or CFE, with some belonging to one or the other. Such a change demands a change in NATO policy priorities. Nonproliferation of NBC weapons and conventional arms control should become high priorities within the NATO policy structure.

After examining NATO history, Prof Dorff found little emphasis on either nonproliferation or arms control objectives. Before the fall of the Berlin Wall and the dissolution of the Soviet Union, emphasis in fact fell on proliferation of weapons, as the members of NATO sought to guarantee themselves the ability to form a collective defense against a foe with nuclear weapons capabilities. However, in the post-Cold War era, the emphasis within NATO has shifted from collective defense to a collective security that includes, not excludes, Russia and other nations outside of the NATO membership.

Nevertheless, nonproliferation and arms control remain on the periphery of NATO policy, noted Prof Dorff. He cited several facts as evidence of this. First, NATO

has yet to address nonproliferation regimes as part of its overall security strategy. In fact, some members (e.g. France) have openly opposed NATO involvement in such matters. Second, no concrete guarantees have been offered that no NBC assets will be deployed in new NATO members' territory. Third, Prof Dorff noted, although NATO policy nominally mentions arms control as an aspect of NATO strategy, the focus is peripheral, at best. Prof Dorff based this assertion on the fact that the organizational approach to arms control within NATO establishes only the most tenuous links between the NATO and arms control worlds.

Prof Dorff concluded that little has changed in the relationship between NATO and issues of nonproliferation and arms control despite the profound transformation of the international security environment. He submitted several recommendations for transitioning NATO into the post-Cold War era with regard to nonproliferation and arms control issues. First, Prof Dorff asserted that communication between NATO and the arms control process must be improved. This should begin with the continuing CFE discussions. Improved communication, explained Prof Dorff, is crucial to avoid outright conflicts between the two.

Second, Prof Dorff suggested the relationship between NATO and nonproliferation/arms control should be adapted to reflect post-Cold War realities. While excluding an active arms control regime may have been appropriate for a collective defense-oriented alliance, it is no longer appropriate for an organization that is growing and shifting its focus to become a collective security-oriented alliance.

Third, Prof Dorff recommended the US publicly promote NATO enlargement as a vehicle for enhancing nonproliferation and arms control objectives. He noted that politicians have thus far failed to enunciate a strategic rationale for NATO enlargement, and that the American public seems increasingly restless as questions are raised about who will pay for NATO enlargement, particularly when the answer frequently given is, "The US." Prof Dorff suggested the advance of such objectives would be an excellent foundation on which to construct strategic rationale for NATO enlargement.

Finally, Prof Dorff recommended that current NATO members, backed by strong US leadership, should dispel the notion that "joining NATO is an invitation to a weapons bazaar." While NATO must have robust capabilities, and new members should contribute to them, NATO should not be a vehicle for accelerated arms proliferation in Central and Eastern Europe.

"No Man's Land: Five Oxymorons from the Balkan Deconstruction," Lt Col Peter H. Liotta

Lt Col Liotta explained, partitioned states, refugees, and the prosecution of war criminals are only some of the critical issues that face the international community as it attempts to reconstruct the former state of Bosnia. Lt Col Liotta's presentation examined

these issues, as well as many others, with a particular focus on their implications for European security.

Lt Col Liotta described what he believed to be two truths about the situation in Bosnia: 1) the NATO Stabilization Force (S-FOR) currently dominates the power landscape of the former Yugoslavia; and 2) little progress has been made since the Dayton Accords. These two truths, said Lt Col Liotta, coupled with the pressures of the potential June 1998 withdrawal of S-FOR from Bosnia, highlight several issues:

First, full implementation of the Dayton Accords is at risk—either prior to June 1998, or at any foreseeable time in the future.

Second, problems such as those mentioned above (refugees, etc.) currently prolong instability in the region and ultimately suggest negative outcomes for long-term regional stability. Lt Col Liotta explained that the Dayton Accords were not meant as an end state. The absence of further negotiations and agreements moving beyond the Accords would only guarantee instability after S-FOR's withdrawal. A new Dayton-type initiative is a likely imperative.

Third, Lt Col Liotta suggested the only practical option for stability would be the creation of a Bosnian protectorate. Such a protectorate would have to be safeguarded by a military force capable of guaranteeing freedom of movement and the return of refugees. Further, Lt Col Liotta stated that the US would have to lead the effort if peace was to be preserved, despite the possibility that a protectorate may not meet the expectations of both the American people and Congress.

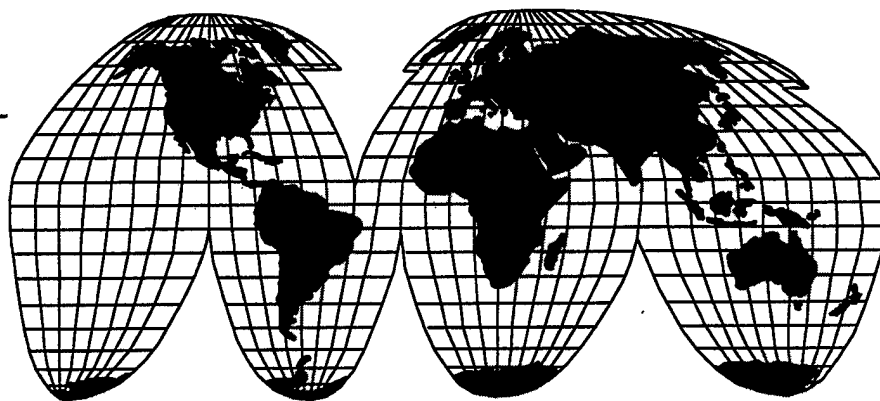
Fourth, Lt Col Liotta offered that the US has no vital interests in the Balkans. He asserted that it was American diplomatic and military efforts that largely ended the war in Bosnia, led to the signing of the Paris Peace Agreement, and created the conditions for peace. Absent US action, the conflict could have drawn into its vortex NATO partners Greece and Turkey. However, the implication of initial US involvement is that having led the effort to end war, the US must now remain to guarantee peace.

Finally, the lack of significant progress and lingering instability suggest the Bosnian peace effort will require prolonged investment of significant resources and personnel at great risk without a meaningful chance of success. Therefore, Lt Col Liotta suggested the appropriate paradigm through which to view the situation in Bosnia might be that of Cyprus, with partitioned states monitored by military personnel, rather than the paradigms of either Somalia or Vietnam.

Lt Col Liotta concluded his presentation with a distillation of these issues into five forces or issues so contrary in nature they may remain problematic no matter what approach or resolution might be offered. Given their contrary nature, Lt Col Liotta called them "oxymorons." The five oxymorons are: 1) US strategic perspectives as they have

applied to the Balkan example; 2) The rise of the “parastate”; 3) A strategy of chaos; 4) Religion as a cultural and political force in the Balkans; and 5) How NATO enlargement may bring unintended consequences.

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Panel 10.

Environmental Security

**Mr. Robert Jarrett, Chair
Captain Ed Oshiba
Colonel F.M. Lorenz
Dr. Charles Krupnick
Captain Paul Valley**

1997 Research Conference

PANEL 10: ENVIRONMENTAL SECURITY

Chair: Mr. Robert Jarrett, Army Environmental Policy Institute (AEPI)

Participants: Capt Ed Oshiba, Air Force Institute of Technology (AFIT)

COL F.M. Lorenz, USMC, Industrial College of the Armed Forces (ICAF)

Dr. Charles Krupnick, USAFA/34th EDG

Capt Paul Valley, USAFA, Department of Biology (DFB)

“DoD Hazardous Waste Site Remediation Issues in Korea,” Capt Ed Oshiba

Capt Oshiba opened the panel presentations by saying, while hazardous waste may seem to be a peripheral concern to the military, it can in fact impact upon US warfighting ability. Contaminated ground water could restrict access to potable water during combat, and contaminated air or land could necessitate operating in unsafe environments or in protective gear that reduces combat effectiveness. As part of his research, Capt Oshiba examined hazardous waste site remediation issues in a potential wartime environment: South Korea. He identified six factors that impact promulgation and implementation of a DoD hazardous waste site remediation policy for South Korea:

- Current DoD overseas remediation policy.
- Degree of Congressional support and funding for remedial actions in Korea.
- Cleanup precedents set in other foreign countries.
- The Korean public's perception of DoD with regard to environmental stewardship.
- Korean environmental awareness, measured by the development and enforcement of Korean environmental law.
- The effect of hazardous waste sites on current health and safety, and on wartime capabilities.

During his research, Capt Oshiba established several important findings. He noted that suspected or confirmed hazardous waste sites, contaminated primarily with petroleum, oil, and lubricants (POL), organic solvents, and heavy metals, existed at numerous locations at DoD installations throughout the Korean peninsula. Drinking water wells at several main operating bases also were found to be contaminated. While these bases rely primarily on commercial water lines, these wells are to be used as contingency sources in times of conflict, and in their present condition would pose a medical risk to any person drinking the water.

Also of importance, said Capt Oshiba, is the rise in the number of Korean environmental laws and increased funding for environmental programs. These trends place pressure on the US to find effective means to reduce or eliminate hazardous waste. Along the same lines, the ROK Ministry of Environment (MOE) recently asked to

conduct a joint assessment with the DoD of US military installations. This may be interpreted as a request for data on contaminated sites and may open the doors of DoD installations to MOE inspectors.

Capt Oshiba concluded that future studies should work to fill significant gaps in current data exposed by his research. He believed that in-depth site assessments are needed to properly determine the levels of contamination at installations in South Korea in order to determine the clean-up requirements and liabilities. Too little information exists on environmental conditions in South Korea, particularly as it relates to hazardous conditions. This must be rectified. Capt Oshiba recommended the use of decision analysis theory which could suggest "optimal" solutions based on the fundamental objectives of policy makers and the relative values they place on the issues raised by his research. To advocate and allocate resources, a risk-based strategic requirements plan should be developed.

**"Security Implications of Regional Water Shortage in the Tigris-Euphrates Basin,"
COL F.M. Lorenz**

COL Lorenz's research focused on the security implications of the Southeast Anatolia Project, a major reclamation and hydropower project in Turkey. Historically, the lands irrigated by the Tigris and Euphrates rivers have been the sites of violent conflict, explained COL Lorenz. The new dam project threatens access to this water for Syria and Iraq, and it therefore threatens to further destabilize an already tense environment. COL Lorenz's research sought to examine the possibilities of a "water war."

COL Lorenz explained, one mitigating factor which must enter into such a discussion is the interrelationship between Turkey, Iraq and Syria. Several bilateral agreements fundamentally link these three nations. Turkey and Syria are linked politically through the PKK and separatist movements. Turkey and Iraq are linked by oil. And, Iraq and Syria have terrorist connections. Therefore, it is difficult for one state to cause harm to the other without causing harm to itself, if even in an indirect manner. For Turkey, a principal goal is to improve the conditions of the Kurds living in the region through increased access to irrigation for food crops. According to COL Lorenz, this portion of the project currently lags behind the development of hydroelectric power, but progress is being made. He cited the hydroelectric generation component of the project as a key factor arguing against the possibility of a water war. The hydroelectric power generated for Turkey will be considerable, and it would be extraordinarily difficult for Turkey to turn off this power supply simply to deny water to states downstream. Indeed, COL Lorenz's research showed that unless the region experienced a 2-3 year drought at some time, water shortage was not an imminent problem.

Following an extensive slide show presentation on the water project and the region, COL Lorenz offered several recommendations. First, the US must develop a

security strategy for the area, and it should rectify the regional division between Commands and by the Department of State (primarily caused by the inclusion of Turkey into Europe through its membership in NATO). Second, the US should increase the availability of reliable data about the region through access to and use of US technology. Finally, COL Lorenz concluded that Turkey is in a good position to defend its water assets, but that it was unlikely that such assets would be used as an instrument of war.

“Submarine Nuclear Reactors in Russia’s Northern Fleet: Environmental Concerns,” Dr. Charles Krupnick

As Russia’s Northern fleet ages or is downsized due to budgetary constraints, the resulting build-up in spent nuclear fuel removed from these decommissioned ships is creating a mounting environmental threat, Dr. Krupnick explained. Submarines are being decommissioned at a rapid rate with no plan in place for proper defueling or dismantlement, resulting in millions of curies of radioactivity which may be vulnerable to accident. Dr. Krupnick addressed this threat during his presentation.

The state of spent nuclear submarine fuel became an issue when Russia confirmed that it had dumped several canisters of the fuel into the Arctic Ocean. Dr. Krupnick noted that while this practice has stopped, it has been replaced by the storage of canisters in temporary locations, some of which are close to the Norwegian border and thus, are a source of concern. The hazard posed is difficult to accurately quantify due to the lack of reliable data, but clearly the international community, in the opinion of Dr. Krupnick, should assist Russia in addressing this problem.

Dr. Krupnick proposed that key elements of a defueling chain must be put in place before significant progress can be achieved. The construction of defueling ships, interim storage sites in Northwest Russia, improved rail transport between the dismantlement sites and the reprocessing facility in the Southern Urals, changes in the reprocessing effort, and construction of a permanent storage site all must be undertaken if clean-up efforts are to succeed. However, mitigating factors make any or all of these required elements very difficult to achieve—the foremost being Russia’s weak economic state.

Dr. Krupnick reported that the US is assisting Russia on a number of fronts. Two major efforts are the Murmansk Trilateral Initiative (MTI) and the Arctic Military Environmental Cooperation (AMEC) program. Although US efforts with Russia on science and technology issues have been substantial under the Gore-Chernomyrdin Commission and the Cooperative Threat Reduction programs, relatively little attention and high-level funding have been given to the submarine spent-fuel problem. Dr. Krupnick recommended that efforts to redress this deficiency be undertaken to prevent a future environmental disaster.

“Environmental Country Study: Czech Republic from an Environmental Security Perspective,” Capt Paul Valley

Capt Valley concluded the panel presentations with an examination of environmental security issues in the Czech Republic, and the concerns and potentials for conflict. According to Capt Valley, the Czech Republic has seen radical changes since the 1989 Velvet Revolution and the 1993 Velvet Divorce, but this revitalization has brought with it some negative environmental impacts. Automobiles, industries and power plants continue to emit significant amounts of pollution into the air and water, while coal mining continues to destroy thousands of acres of the Czech Republic. However, Capt Valley informed the audience that significant efforts are underway to address these emerging environmental problems.

The Czech Republic forms, with Germany and Poland, what has been called the “Black Triangle,” so called because of the heavy use of coal as a fuel, with resulting black clouds of coal smoke and layers of black coal soot on surfaces. Capt Valley explained that because of geographic conditions, however, winds blow from the Czech Republic northward to the other two states.

In seeking to reduce emissions from industry, the Czechs are working to reduce their reliance on coal for fuel from current levels of almost 70 percent, down to 40 percent from gas and coal in the future. Capt Valley noted, the Czechs hope to make up the difference through the use of renewable energy, such as solar, water, wind and geothermal energy, and through savings via more efficient energy production methods. Capt Valley warned, however, that because of geography, the Czech Republic may have difficulties in developing these renewable energy sources.

Attention to environmental conditions in the country has led to a potential for internal conflict. Capt Valley noted that the Czech Republic already has witnessed a rise in environmentally related protests, the growth of its Green Party, and in Greenpeace and local activist groups. Both sides of the argument (the environmentalists and the government) are trying to “sell” their side of the debate to the public. A potential for international conflict also exists with the Republic’s neighbors. Austria, for example, is a stridently anti-nuclear state, and it has expressed deep concerns about the Czech Republic’s nuclear power production programs. Poland and Germany also are keeping an eye on the Czech Republic’s efforts to improve their environmental conditions, not only as it concerns pollutants which are pushed by prevailing currents toward their borders, but also to potential incidences of illegal dumping. And relations with Slovakia, though stable diplomatically, must bear watching for future changes.

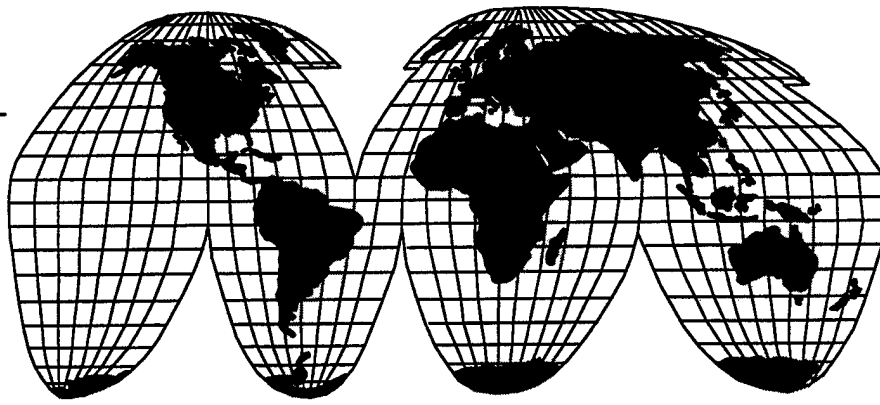
From his research, Capt Valley concluded that the Czech Republic is indeed serious about improving their environmental problems. The infrastructure necessary to support these efforts already seems strongly in support of environmental initiatives. Continued outside support for these efforts should be encouraged to speed progress and to

forestall any potential problems. And finally, while the potential for internal or international conflicts is not imminent, it does warrant continued monitoring.

PANEL DISCUSSION

The only question posed by participants was directed to Capt Oshiba, who was asked whether the intelligence community recognized the Asian crime mobs trafficking in toxic waste and its implications for warfighting. Capt Oshiba responded that his research did not address this scenario.

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Keynote Address

1997 Research Conference

KEYNOTE ADDRESS

The first day of the conference culminated in a dinner and research awards presentation. Attendees were privileged to hear a keynote address given by Maj Gen (USAF, Ret.) Charles D. Link. Gen Link held a distinguished career with the Air Force, and he now serves as the Executive Vice President for the Air Force Memorial Foundation.

Gen Link's keynote address focused on his concern that the Air Force's role and importance in national security and warfighting is being undervalued and trivialized for the sake of the larger goal of "jointness." He cited previous reviews and studies, notably the Bottom Up Review, whose models and analysis undervalued the role of airpower due to fundamental flaws in the models and constructs. He also cited the Quadrennial Defense Review as an example of wasted efforts, where much time was spent in meetings and briefings, but from which little substantive direction emerged. From these efforts, he drew three conclusions:

- Not much happens.
- The debate is always joined by many who agree that change is necessary, but by few who can agree on any particular change.
- If and when something does happen, it is usually bad for the Air Force.

In support of this last conclusion, Gen Link noted that under the Bottom Up Review and the Quadrennial Defense Review, the Air Force took proportionately greater cuts in forces than did the other Services. In an effort to understand why the Air Force fared so poorly, Gen Link identified several reasons, both at the surface and those with deeper meaning.

Three surface reasons were given to illuminate the Air Force's problems in these reviews. Gen Link termed the first reason "Gulf War Revisionism," where the growing chorus for the ground campaign as the deciding factor in winning Desert Storm in a short period of time and with few Allied casualties ignores or rewrites the role of the air campaign which preceded it. As an indicator of that view, he noted that the Gulf War has become known as the "One Hundred Hour War," the length of time of the ground campaign to retake Kuwait. Gen Link argued that it is wrong to imply that the war began simply when the ground forces engaged. A second surface reason for the Air Force's problems is in the organizations like OSD (PA&E), the labs and others in which the cost of things, rather than their value, is emphasized. Processes do not reveal those cases where smaller investment yields greater military effect. Systems are then trimmed based on cost, rather than on value. Finally, Gen Link referred back to the flawed analytical model he had mentioned previously. He maintained that the models—even the Air Force's own models—purport to measure the effectiveness of all forces in the joint warfight, but in fact undervalue airpower. As an example, he explained that in the Deep Attack Weapons Mix Study, where they closely examined the models used by the

Department of Defense, an analysis of the first official results of the TACWAR simulation of a war in Korea in 2006 predicted that it would take 16 air sorties to destroy a single Korean Armored Personnel Carrier (APC).

Gen Link continued, saying that while these surface reasons illuminate the issue, deeper reasons exist that he believes reach to the root problems that weaken the status of the Air Force. First, a fundamental problem exists with regard to the Air Force's sense of identity. While the other Services organize around a mortal entity, the Air Force instead organizes around a thing—the airplane. And few Air Force personnel actually have piloted an airplane. In Gen Link's view, the Air Force has no service-wide equivalent to the Army's concept of combined arms or the Navy's fleet operations. The Air Force needs a concept where all members can find their duty related to the other duties in the Air Force. Complicating the mix is the fact that specialized non-fliers, for example missile experts, develop an identity separate from others. This leads to greater fragmentation within the Service. The result, argued Gen Link, is an airman with less confidence in his identity or his Service's contribution, as compared to his fellow participants in the crucible of joint debate.

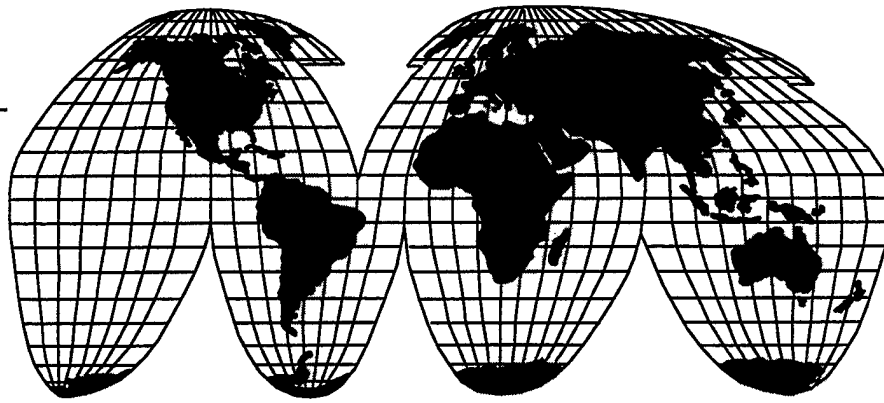
Another piece of evidence presented was the Goldwater-Nichols Act and its elevation of the concept of "jointness." It has been maintained that jointness is good, and the US has declared it to be so in this legislation; however, Gen Link questions exactly what good comes from jointness? An intrinsic problem is that jointness lacks precise definition. The term can therefore be used to promote many different agendas. The analogy used by Gen Link is that jointness is like Little League rules: everyone gets to play, rather than putting your best pitcher, hitter or runner in the field. Furthermore, an implied condition of jointness is that if it is good, then service advocacy must be "bad." A soldier advocating the use of air power in support of the land campaign is not bad, he is joint. A sailor advocating the use of land-based tankers to extend the range of carrier-based fighters is not bad, he is joint. But an airman, advocating the use of airpower, other than in support of or in concert with other Services in order to achieve military objectives is considered 'unjoints.' The pursuit of jointness therefore restricts the ability to advocate for one's own Service, even when doing so could achieve goals more quickly and efficiently.

Finally, Gen Link explained the importance of Air Force advocacy. He noted that eight years after the Gulf War, the US still has not modified any of its major war plans to take advantage of the airpower capabilities demonstrated in that conflict. Furthermore, Air Force programs, always on the high end of the technology spectrum, require an "Air Force friendly" atmosphere in which to mature. Legislators and others repeatedly complain about high-ticket Air Force items such as the B-2 bomber and the F-22, regardless of whether the utility of such items offsets their costs. The fact remains that the Air Force continues to push the envelope when it comes to employing advanced technology, more so than any other Service. Along with that commitment comes the cost of development. In addition, modern airpower has produced significant military effects

without placing large numbers of troops at risk of engagement. Moreover, modern airpower can attack the enemy's capacity to fight and the enemy's strength to resist, thereby reducing or avoiding all together the need for close combat. Airpower's versatility also permits emulation of the scalpel or the sledgehammer, whatever is required, and compensation for shortfalls in land or sea power in much greater measure than either of those can compensate for a shortfall in airpower.

In conclusion, Gen Link made one final point about jointness. The prevailing interpretation of this term advocates the merger of air, sea and land forces in order to create the preferred joint entity. But that very merger tends to mask the separate relative strengths and weaknesses of the components. If one considers an engagement between an Army and a Navy, an outcome would probably be a draw somewhere around the beach, with neither able to pursue the other into its element. However, if one considers an engagement between an Air Force and either an Army or Navy, the outcome would be much different. As Gen Link questions: "Where is the wisdom in the prevailing pattern of defense investment?" In closing, Gen Link argued that the nation, joint force commanders, taxpayers, parents, grandparents, and spouses need vigorous and effective advocacy for air and space power, and asked those in attendance to help.

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Agenda

1997 Research Conference



DEPARTMENT OF THE AIR FORCE
USAF INSTITUTE FOR NATIONAL SECURITY STUDIES
USAF ACADEMY, COLORADO



5th ANNUAL RESEARCH RESULTS CONFERENCE
13-14 November 1997
AGENDA

THURSDAY, 13 NOVEMBER

Fairchild Hall, Lecture Hall H-2 and Lectarins L-1 and L-5 (third floor)

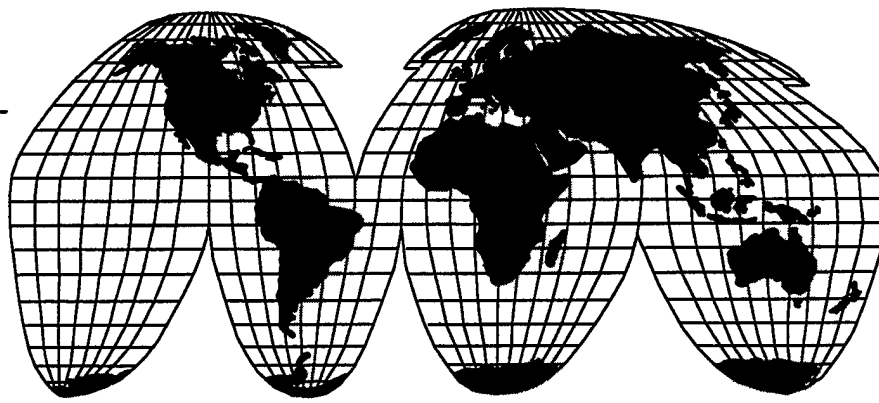
0800 Buses depart hotels for Fairchild Hall
0830-0900 Registration and refreshments
0900-0930 **(H-2) Opening Session**
Welcome by: Lt Gen Tad J. Oelstrom (HQ USAFA/CC)
Maj Gen Thomas H. Neary (HQ USAF/XON)
Lt Col Peter L. Hays (USAF INSS)
0940-1120 **(L-1) Panel 1: ARMS CONTROL – Lt Col Jeffrey Larsen (INSS), Chair**
1120-1220 Lunch catered in Lectarins L-1 and L-5
(L-1) Advice for researchers on publishing: Col (S) James W. Spencer, *Airpower Journal*
(L-5) Overview of INSS research program: Lt Col Peter L. Hays
1220-1335 **(L-1) Panel 2: COUNTERPROLIFERATION – Lt Col Alex Ivanchishin (XONP), Chair**
1350-1530 **(L-1) Panel 3: SPACE POLICY – Lt Col Guy M. Walsh (NDF, INSS), Chair**
1545-1700 **(L-1) Panel 4: AIR FORCE POLICY – Lt Col Kurt J. Klingenger (OSD, S&R), Chair**
1700 Buses depart for hotels
1815 Buses depart hotels for Cactus Rose Restaurant
1845-1930 No-host reception at Cactus Rose Restaurant
1930-2100 **Banquet and Keynote Address**
Speaker: Maj Gen Charles D. Link, USAF, Retired, Exec. VP of the AF Memorial Foundation
2100-2125 Presentation of Research Awards
1. Maj Gen Robert E. Linhard Award for Outstanding Research for INSS
2. Outstanding Academy Researcher Award for INSS
2130 Buses return to hotels

FRIDAY, 14 NOVEMBER

Fairchild Hall, Lectarins L-1 and L-5 (third floor)

0800 Buses depart hotels for Fairchild Hall
0830-0845 Refreshments
0845-1000 **(L-1) Panel 5: INFORMATION WARFARE – Lt Col Greg White, (USAFA/DFCS), Chair**
1015-1130 **(L-1) Panel 6: REGIONAL SECURITY (Asia) – Dr William E. Berry, Jr. (UCCS), Chair**
1015-1130 **(L-5) Panel 7: REGIONAL SECURITY (Russia) – Col (S) Paul Selva (OSD/NA), Chair**
1140-1230 Lunch on Staff Tower, Mitchell Hall (cadet dining facility)
1245-1400 **(L-1) Panel 8: REGIONAL SECURITY (Africa) – Maj Deborah Shackleton (USAFA/DFH)**
1245-1400 **(L-5) Panel 9: REGIONAL SECURITY (NATO) – Mr Oleg Ivanov (INSS), Chair**
1415-1600 **(L-1) Panel 10: ENVIRONMENTAL SECURITY – Mr Robert Jarrett (AEPI), Chair**
1600-1615 **(L-1) Concluding Comments**
Col Thomas D. Miller (HQ USAF/XONP)
Lt Col Peter L. Hays (USAF INSS)
1615 Conference concludes
Buses return to hotels

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*November 13-14 INSS 1997 Research Results Conference
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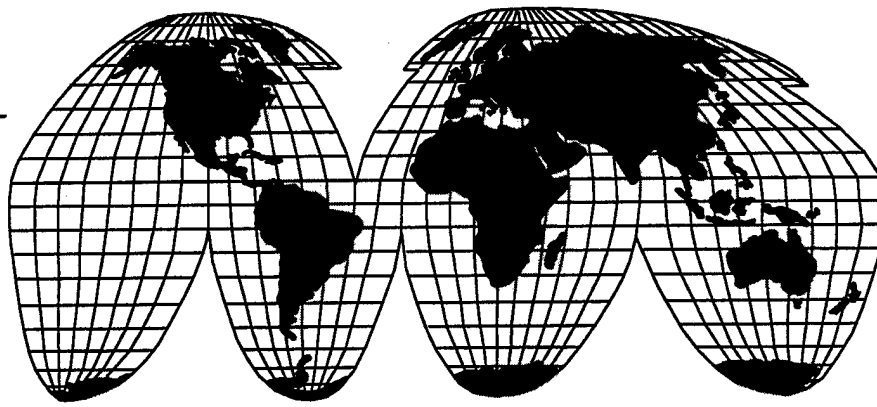
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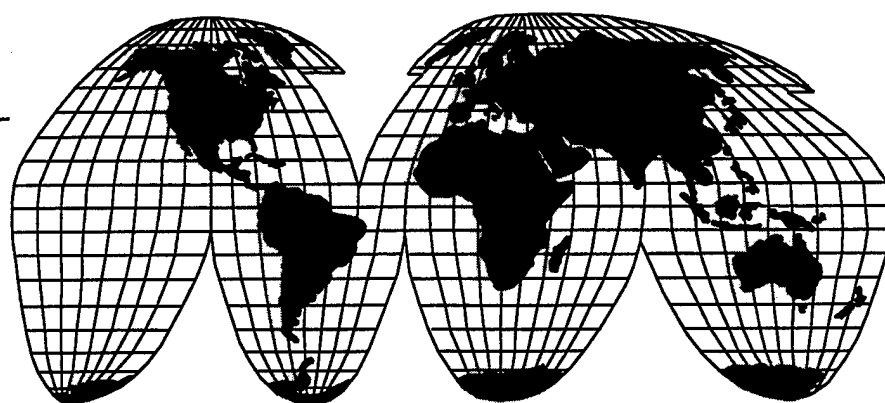
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Administrative Materials

1997 Research Conference



Letters of Invitation

1997 Research Conference



DEPARTMENT OF THE AIR FORCE
USAF INSTITUTE FOR NATIONAL SECURITY STUDIES
USAF ACADEMY, COLORADO



6 October 1997

USAF Institute for National Security Studies
HQ USAFA/DFES
2354 Fairchild Drive, Suite 5L27
USAF Academy, CO 80840-5000

XXXXXXX
XXXXXXX
XXXXXXX

Dear XXXXXX

On behalf of the US Air Force Academy, the Policy Division of the Nuclear and Counterproliferation Directorate (HQ USAF/XONP), and the USAF Institute for National Security Studies (INSS), I would like to invite you or a representative of your organization to attend a two-day conference on 13 and 14 November 1997. This conference will highlight the significant accomplishments of a number of researchers sponsored by INSS during fiscal year 1997. We plan to organize this conference using an academic format, with several topical panels each day. The proceedings will begin at 0830 on Thursday, 13 November, in Building 2354, Fairchild Hall, Lecture Hall H-2. More details can be found in the attached registration form and tentative agenda.

A hosted dinner is also scheduled for Thursday evening featuring a keynote address by Maj Gen Charles D. Link, USAF, Retired. Maj Gen Link was most recently the Special Assistant to the Chief of Staff for the National Defense Review. We anticipate approximately 75-100 participants from government and private organizations will attend. Two lunches and the conference dinner will be provided by INSS through your conference registration fee (\$50.00).

We very much look forward to your participation in our fifth annual research conference. Please respond by returning the attached registration form to Jennifer Williams of Science Applications International Corporation by 24 October.

In addition, please bring either a check or cash for the conference fee which will be collected on the morning of 13 November. All checks should be made payable to "INSS Conference Fund." Thank you.

Sincerely

PETER L. HAYS, Lieutenant Colonel, USAF
Director, Institute for National Security Studies

Attachments

1. Registration Form
2. Tentative Agenda
3. Map

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DEPARTMENT OF THE AIR FORCE
USAF INSTITUTE FOR NATIONAL SECURITY STUDIES
USAF ACADEMY, COLORADO



6 October 1997

USAF Institute for National Security Studies
HQ USAFA/DFES
2354 Fairchild Drive, Suite 5L27
USAF Academy, CO 80840-5000

XXXXXXX
XXXXXXX
XXXXXXX

Dear XXXXX

On behalf of the US Air Force Academy, the Policy Division of the Nuclear and Counterproliferation Directorate (HQ USAF/XONP), and the USAF Institute for National Security Studies (INSS), I would like to invite you or a representative of your organization to attend a two-day conference at the Air Force Academy on 13 and 14 November 1997. This conference will highlight the significant accomplishments of a number of researchers sponsored by INSS during fiscal year 1997. We plan to organize this conference using an academic format, with several topical panels each day. The proceedings will begin at 0830 on Thursday, 13 November. More details can be found in the attached registration form and tentative agenda.

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We have reserved 45 rooms in the Radisson Hotel beginning Wednesday, 12 November for three nights. The hotel is located on 8110 North Academy Blvd, outside the South Gate of the Academy. To reserve your room please contact the Academy's billeting office reservation number at (719) 333-4910 or fax your reservation request to Susan at (719) 333-4936, by 29 October 1997. Arrivals after 1800 will need to be secured with a credit card. The cost of the room is the government rate of \$54.99 per person, per night.

The conference will take place in Building 2354, Fairchild Hall, Lecture Hall H-2 (3rd floor). Parking at Fairchild Hall will be very limited. Accordingly, transportation will be provided from the Radisson each morning to transport conference participants to the conference facility, as well as from the conference back to the Radisson in the afternoon. We will also transport participants to and from the banquet on Thursday evening.

The Saturday after the conference concludes is the Air Force's last home football game of the season. The Falcons are currently 5-0 in the Western Athletic Conference and will be playing one of the stronger teams in the WAC, Wyoming. For those who wish to purchase reserved seats in advance for \$18, you may call 1-800-666-USAF or (719) 472-1895. You may also be able to purchase general admission seating during the week of the game for \$10.

We very much look forward to your participation in our fifth annual research conference. Please respond by returning the attached registration form to Jennifer Williams of Science Applications International Corporation by 24 October. In addition, please bring either a check or cash for your conference fee which will be collected on the morning of 13 November. All checks should be made payable to "INSS Conference Fund." Thank you.

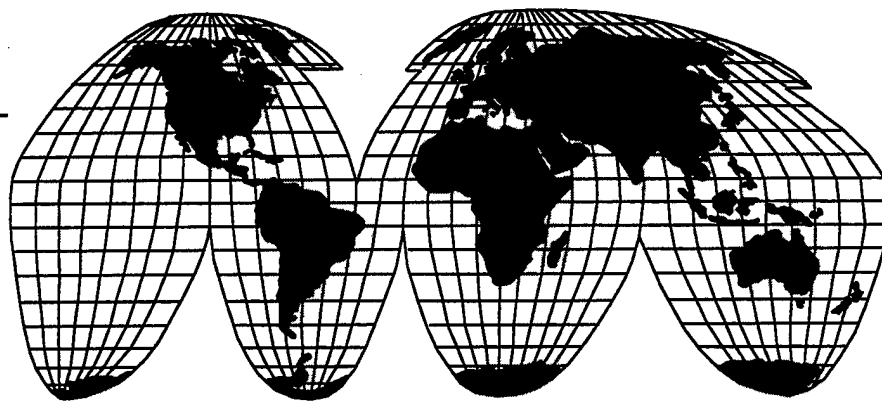
Sincerely

PETER L. HAYS, Lieutenant Colonel, USAF
Director, Institute for National Security Studies

Attachments

1. Registration Form
2. Tentative Agenda
3. Map

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Registration Forms

1997 Research Conference

INSS "1997 RESEARCH RESULTS CONFERENCE"
REGISTRATION FORM
(Local Area)

Please respond by fax no later than 24 October to:

Jennifer Williams
SAIC
1710 Goodridge Drive, MS 1-8-4
McLean, Virginia 22102
Fax: 703/760-0911 Phone: 703/734-5822

Conference location and time: **Thursday, 13 November 1997, 0830-2130**
Bldg 2354, Fairchild Hall, Room H-2 (3rd floor)
Catered lunch at Fairchild Hall
Dinner at the New South Wales Restaurant, 1845-2130

Friday, 14 November 1997, 0830-1700
Bldg 2354, Fairchild Hall, Room L-1 (3rd floor)
Lunch with cadets, Mitchell Hall

All inclusive Conference Fee: \$ 50.00
(includes lunch Thursday and Friday, dinner on Thursday, and miscellaneous expenses)

Basic Registration Fee: \$ 25.00
(includes lunch Thursday and Friday and miscellaneous expenses)

NOTE: CONFERENCE FEES ARE REIMBURSABLE BY SUBMITTING SF 1556 TO DFSB.
YOU WILL RECEIVE A RECEIPT AT THE CONFERENCE

Call with questions: Comm Voice 703/734-5822
 Comm FAX 703/760-0911

(all checks for the conference fee will be collected on the morning of 13 November)

Name/Rank/Title: _____
Address: _____

Telephone (Comm and DSN) _____
Fax (Comm and DSN) _____
E-Mail Address _____
Meals will attend: Thursday & Friday Lunch ____ Thursday Banquet ____

(Next Page)

INSS "1997 RESEARCH RESULTS CONFERENCE"
REGISTRATION FORM
(Cont'd)

Please circle your meal selections:

Catered lunch on 13 November

1. Mardi Gras (Salami, smoked sliced turkey, provolone, lettuce, tomato, and Louisiana marinated vegetable relish on a baguette, seasonal fresh fruit salad, Cajun spiced potato chips, and New Orleans style gourmet nut chip cookies)
2. The Vegetarian (Garden fresh lettuce, tomato, cucumbers, sweet red onion, avocado, and zesty alfalfa sprouts planted on a freshly baked croissant, with cream cheese and dressing on the side. Accompanied by potato chips, fresh mixed fruit, and oatmeal raisin cookies)
3. Pasta Roma (Mediterranean pasta salad with a lightly lemon marinated roasted breast of chicken. Served with breadsticks, seasonal fresh fruit salad, and mixed fruit yogurt)
4. Eiffel Tower (Fresh roasted prime beef piled high on a french baguette, served au jus with creamed horseradish sauce, marinated mushroom button salad, and a wedge of watermelon)
5. Pepsi or Diet Pepsi

Banquet on 13 November*

1. North Atlantic Salmon
2. Blue-Nose Grouper
3. Prime Rib
4. New York Steak
5. Shrimp Scampi
6. Lemon or Pepper Chicken

Note: All dinners served with salad, fresh baked bread, vegetable of the day, baked potato, dessert, and your choice of coffee, tea, and soda. A cash bar will be available.

Banquet will be held at the New South Wales Restaurant, 5905 Corporate Drive, Colorado Springs, CO 80919.

INSS "1997 RESEARCH RESULTS CONFERENCE"
REGISTRATION FORM
(Out of Town)

Please respond no later than 24 October to:

Jennifer Williams
SAIC
1710 Goodridge Drive, MS T1-8-4
McLean, Virginia 22102
Fax: 703/760-0911 Phone: 703/734-5822

Conference location and time:

Thursday, 13 November 1997, 0830-2130
Bldg 2354, Fairchild Hall, Room H-2 (3rd floor)
Lunch at Fairchild Hall
Dinner at the New South Wales Restaurant, 1845-2130

Friday, 14 November 1997, 0830-1700
Bldg 2354, Fairchild Hall, Room L-1 (3rd floor)
Lunch with cadets, Mitchell Hall

Conference Fee: \$ 50.00

(includes lunch Thursday and Friday, dinner on Thursday, and miscellaneous expenses)

NOTE: CONFERENCE FEES ARE REIMBURSABLE TRAVEL EXPENSES.
YOU WILL RECEIVE A RECEIPT AT THE CONFERENCE

Call with questions: Comm Voice 703/734-5822
Comm FAX 703/760-0911

(all checks for the conference fee will be collected on the morning of 13 November)

Name/Rank/Title: _____

Address: _____

Telephone (Comm and DSN) _____

Fax (Comm and DSN) _____

E-Mail _____

Meals will attend: Thursday & Friday Lunch _____ Thursday Banquet _____

(Next Page)

INSS "1997 RESEARCH RESULTS CONFERENCE"
REGISTRATION FORM
(Cont'd)

Please circle your meal selections:

Catered lunch on 13 November

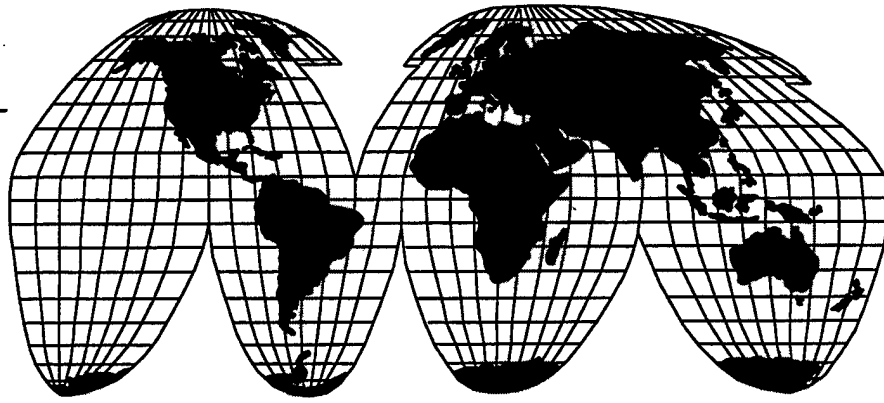
1. Mardi Gras (Salami, smoked sliced turkey, provolone, lettuce, tomato, and Louisiana marinated vegetable relish on a baguette, seasonal fresh fruit salad, Cajun spiced potato chips, and New Orleans style gourmet nut chip cookies)
2. The Vegetarian (Garden fresh lettuce, tomato, cucumbers, sweet red onion, avocado, and zesty alfalfa sprouts planted on a freshly baked croissant, with cream cheese and dressing on the side. Accompanied by potato chips, fresh mixed fruit, and oatmeal raisin cookies)
3. Pasta Roma (Mediterranean pasta salad with a lightly lemon marinated roasted breast of chicken. Served with breadsticks, seasonal fresh fruit salad, and mixed fruit yogurt)
4. Eiffel Tower (Fresh roasted prime beef piled high on a french baguette, served au jus with creamed horseradish sauce, marinated mushroom button salad, and a wedge of watermelon)
5. Pepsi or Diet Pepsi

Banquet on 13 November*

1. Salmon
2. Prime Rib
3. New York Steak
4. Shrimp Scampi
5. Vegetarian

Note: All dinners served with salad, fresh baked bread, vegetable of the day, baked potato, dessert, and your choice of coffee, tea, and soda. A cash bar will be available.

Banquet will be held at the Cactus Rose Restaurant. Directions will be provided at the conference.



Banquet

1997 Research Conference



**DEPARTMENT OF THE AIR FORCE
USAF INSTITUTE FOR NATIONAL SECURITY STUDIES
USAF ACADEMY, COLORADO**



13 November 1997

—BANQUET AGENDA—

THURSDAY, 13 NOVEMBER

- | | |
|------------------|---|
| 1830 | Buses depart hotel for the Cactus Rose Restaurant |
| 1845-1930 | No-host reception at the Cactus Rose Restaurant |
| 1930 | Dinner is served |
| 2015-2020 | Introduction: Lieutenant Colonel Peter L. Hays |
| 2020-2100 | Keynote Address: Major General (Retired) Charles D. Link |
| 2100-2105 | Presentations: Major General Thomas H. Neary |
| 2105-2115 | The Major General Robert E. Linhard Award for Outstanding Research:
presented by Major General Thomas H. Neary and Mrs. Joanne Linhard |
| 2115-2125 | Outstanding Academy Researcher Award: presented by Major
General Thomas H. Neary and Mrs. Joanne Linhard |
| 2125-2130 | Closing Remarks: Lieutenant Colonel Peter L. Hays |
| 2130 | Buses return to hotel |

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Major General Thomas H. Neary is director of nuclear and counterproliferation, deputy chief of staff, air and space operations, the Pentagon, Washington, D.C.

The general grew up in Idaho and entered the Air Force as a graduate of the Reserve Officer Training Corps program at the University of Idaho. After five years of missile operations duty at Malmstrom Air Force Base, Montana, he began a varied staff career in nuclear planning and missile force development. He held positions at Headquarters Strategic Air Command and the Joint Strategic Target Planning Staff in Omaha, Nebraska, as well as Headquarters US Air Force, the Pentagon and Supreme Headquarters Allied Powers Europe, Mons, Belgium. While in Europe, General Neary was deputy commander for operations, 485th Tactical Missile Wing, Florennes Air Base, Belgium. He has commanded two ICBM wings; the 341st at Malmstrom Air Force Base, and the 90th at Francis E. Warren Air Force Base, Wyoming. Prior to his current assignment, he served as director, strategic target plans and director of operations and logistics, United States Strategic Command, Offutt Air Force Base, Nebraska.

General Neary and his wife, Joan, have four children: Timothy, Andrea, Ryan, and John.

Major General Robert E. Linhard was the director of plans, deputy chief of staff, plans and operations, Headquarters US Air Force, Washington, D.C. He was responsible for the Headquarters Air Force position on unilateral and joint policy guidance, strategy and doctrine development and assessment, war and mobilization representative to the US and Canada Permanent Joint Board on Defense and the US national director for the Air Standardization Coordinating Committee.

General Linhard was a strong supporter of INSS and a true visionary in national security affairs. The Major General Robert E. Linhard Award for Outstanding Research for INSS is given annually to the author(s) of the most outstanding research done under the auspices of an INSS grant. General Linhard died on active duty, August 3, 1996. He is survived by the former Joanne Blayne of Bedford, Ohio and his daughter, Jennifer.

**THE POLICY DIVISION OF THE USAF NUCLEAR AND
COUNTERPROLIFERATION DIRECTORATE**

&

THE USAF INSTITUTE FOR NATIONAL SECURITY STUDIES

5TH ANNUAL RESEARCH RESULTS CONFERENCE

USAF Academy, Colorado

13-14 November 1997

Banquet and Keynote Address

Program

No-Host Reception Cactus Rose Restaurant

Banquet

Welcome Lieutenant Colonel Peter L. Hays

Keynote Address Major General (Retired) Charles D. Link

Presentations Major General Thomas H. Neary
& Mrs Joanne Linhard

* The Major General Robert E. Linhard Award for
Outstanding Research

* Outstanding Academy Researcher Award

Closing Remarks Lieutenant Colonel Peter L. Hays

BANQUET MENU

Salmon

Prime Rib

New York Steak

Shrimp Scampi

Vegetarian

Seasonal Fresh Vegetables

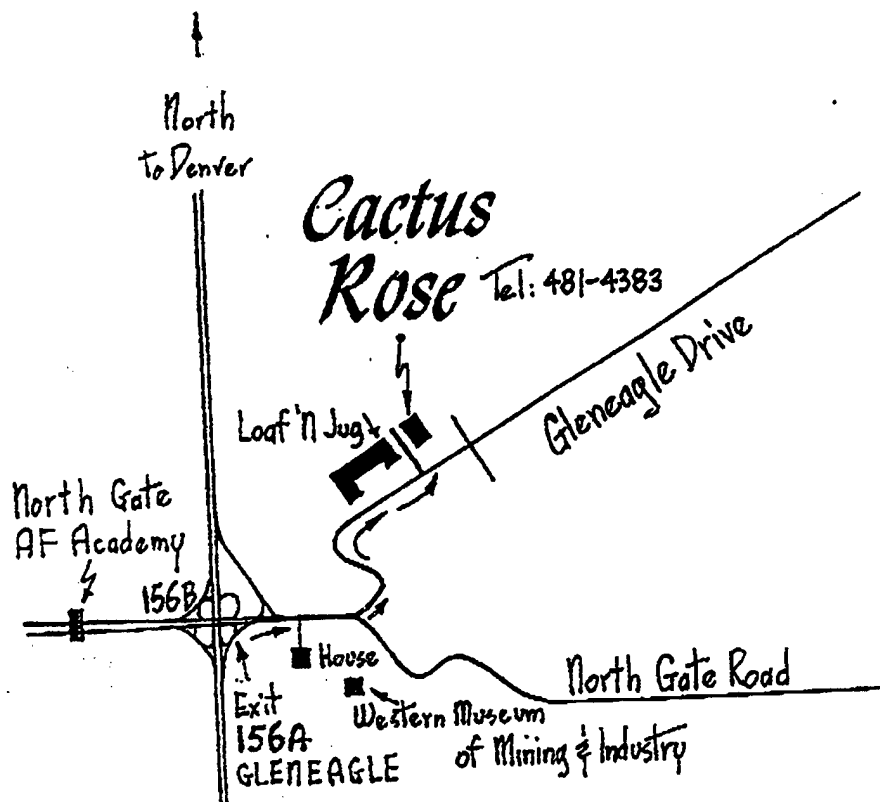
Baked Potato

Dessert

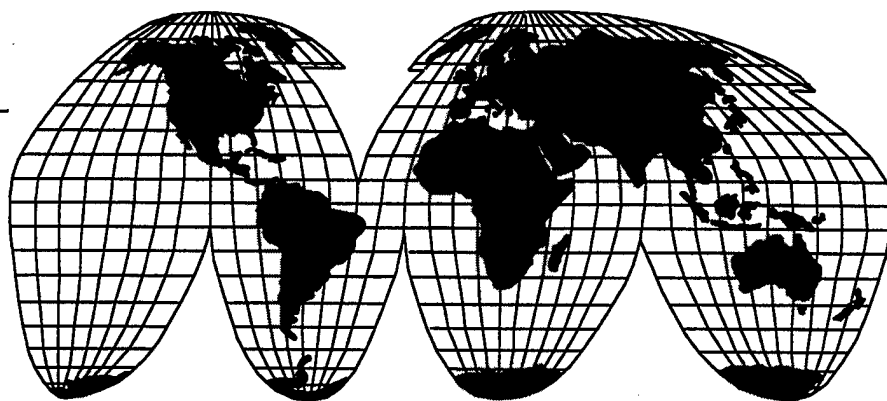
Major General (Retired) Charles D. Link is currently the Executive Vice President of the Air Force Memorial Foundation. General Link retired on August 1, 1997 after 40 years of military service. His last assignment was special assistant to the chief of staff for the National Defense Review, Headquarters US Air Force, Washington D.C.

After graduating from high school, General Link enlisted in the Air Force and served as a jet engine aircraft mechanic until he attended the last Air Force Officer Candidate School class, 63-D. Upon completion, he was commissioned in June 1963. He then served as an aircraft maintenance officer until entering pilot training in January 1967 at Williams Air Force Base, Ariz. After receiving pilot wings, he attended F-4 training at MacDill Air Force Base, Fla., then OV-10 forward air controller training at Hurlburt Field, Fla. In March 1969, he was assigned as a forward air controller for the 1st Brigade, 1st Air Cavalry Division, Tay Ninh, South Vietnam.

In addition to operational commands at wing and numbered air force levels, the general has served as deputy director for political-military affairs, J-5, the Joint Staff, and director of plans and policy, J-5, US European Command. Prior to his last assignment, he was special assistant to the chief of staff for roles and missions, the Pentagon, Washington, D.C.

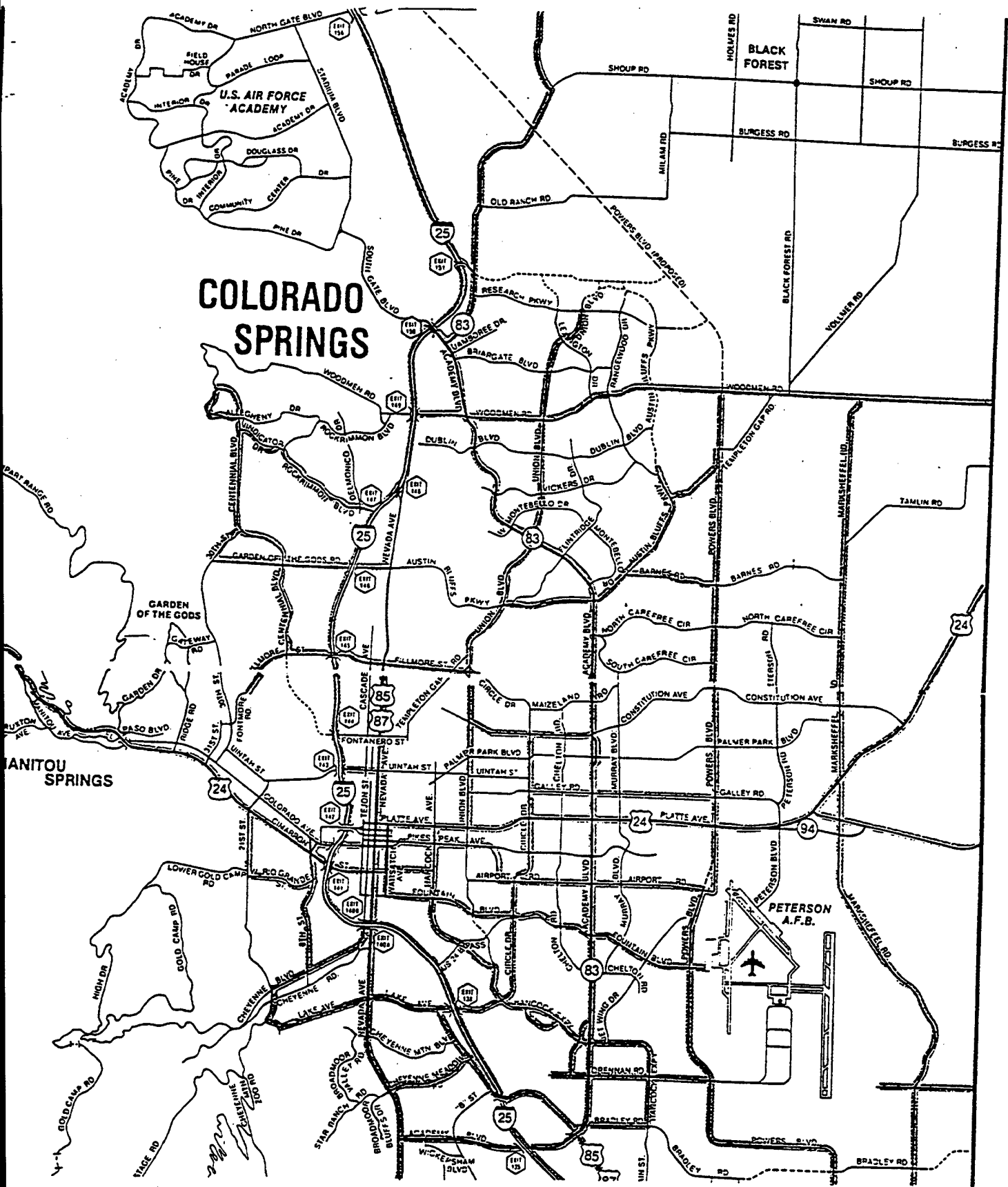


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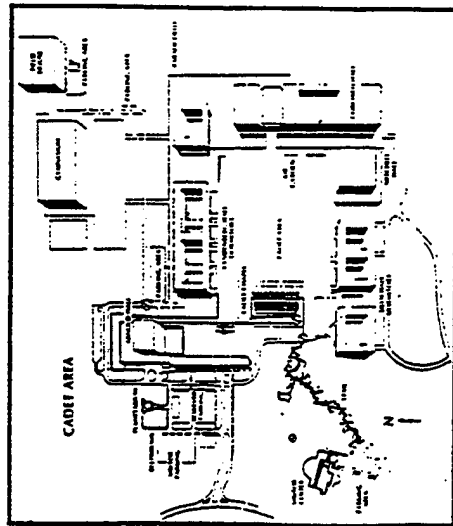
Conference Maps

1997 Research Conference



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Welcome to your United States Air Force Academy



SPECIAL INSTRUCTIONS

- The Air Force Academy is open to the general public 9 a.m. to 5 p.m.
- Please park only in designated areas. If you must stop where there is no parking, please pull completely off the road. Buses may discharge and pick up passengers at the fronts of the Chapel and Visitor Center but may not park there.
- Speed limits are posted and enforced with radar.
- Check your vehicle's gas supply before proceeding. There are no public service stations on the Academy.
- Altitude, at the Visitor Center and Cadet Chapel is 7,200 feet. If you experience difficulty breathing, please take your time and rest often.
- The Academy has a large population of wild life. Watch for deer... If accompanying cars flash their headlights, it probably means there are on the road ahead.
- Areas open to the public include the Visitor Center, Arnold Hall, Field House, Cadet Chapel and all the stops along the self-guided route.
- The Visitor Center is 8 miles from the South Gate and 6 miles from the North Gate. Park at the Visitor Center and enjoy a short nature trail walk to the Chapel. Visitors unable to walk the partially-uphill one-third mile trail should park in designated areas near the Chapel.

Follow the Falcon

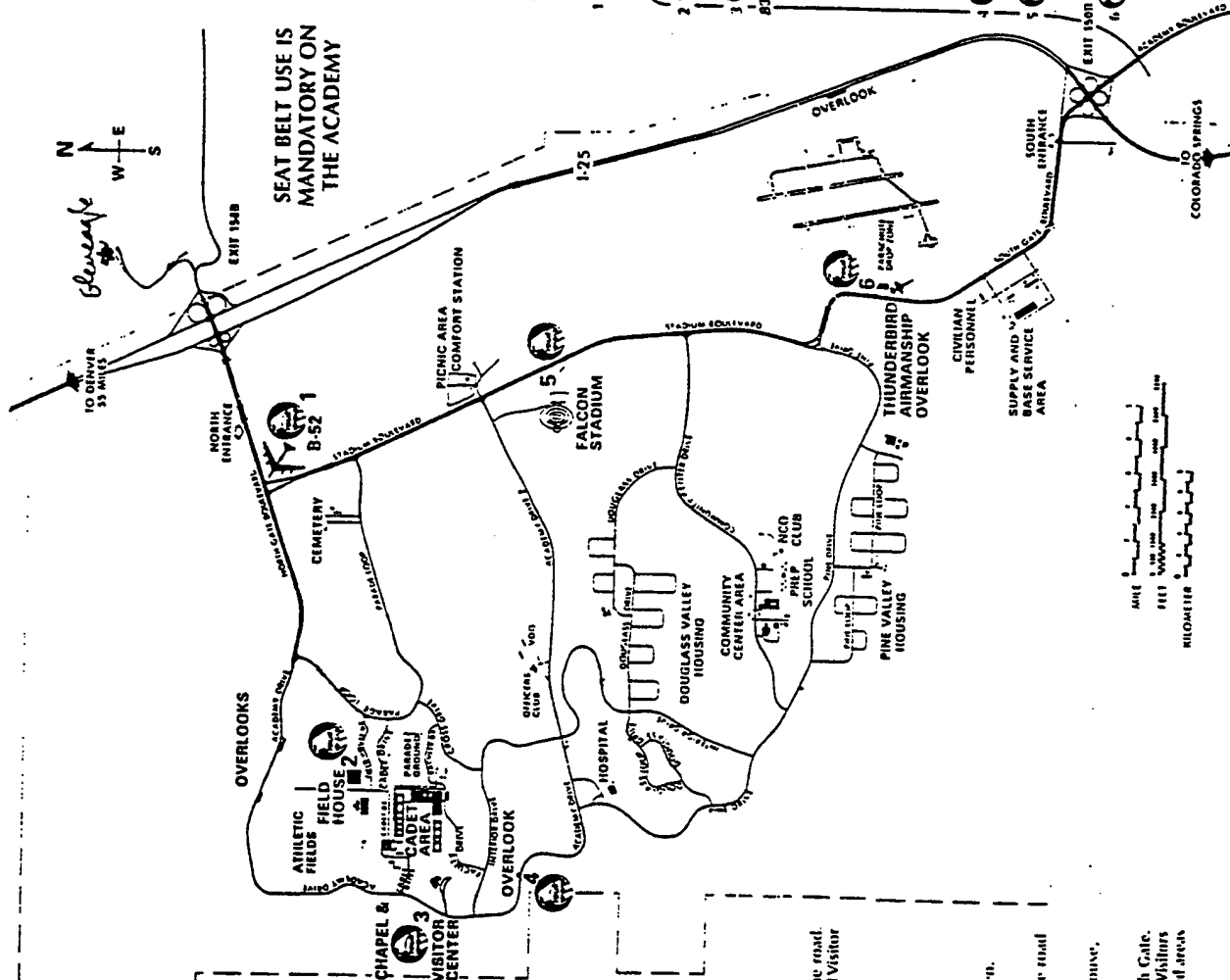


Self-guided Tour

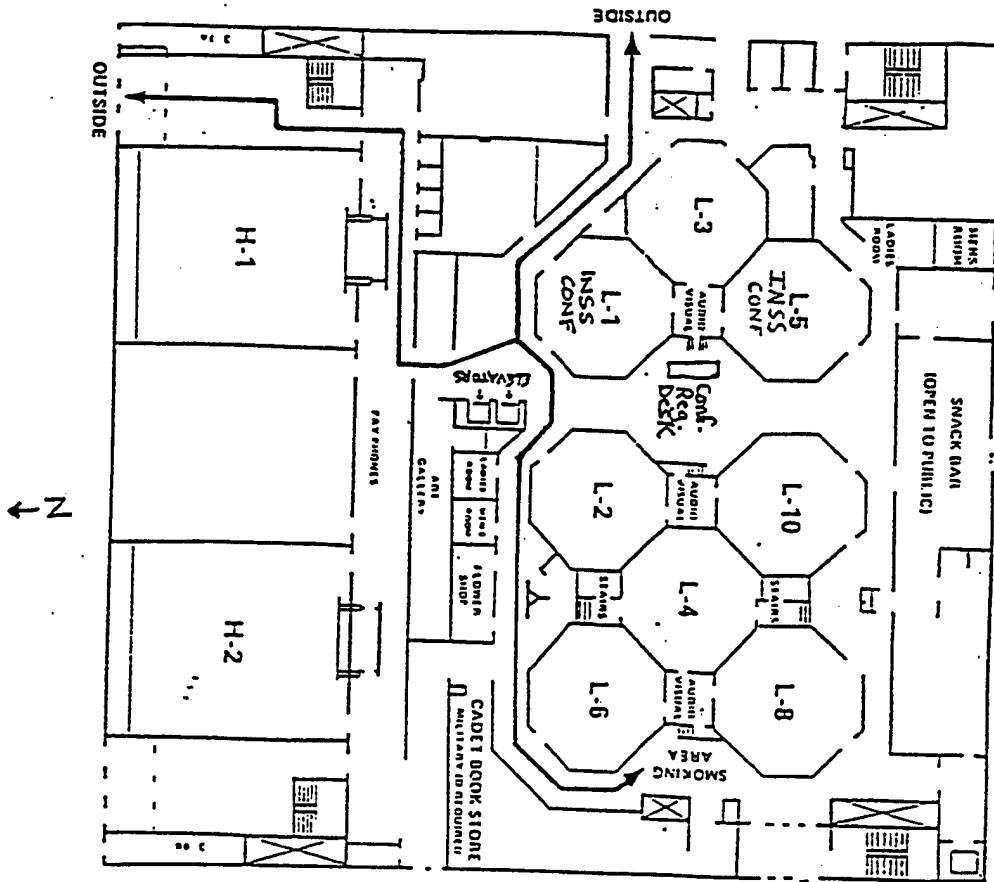
Points of interest do not have to be visited in the order listed.

- B-52 Display**
The B-52 has been the backbone of America's manned bomber force for more than a quarter of a century.
- Field House**
Athletic building, open 9 a.m. to 5 p.m.
- Visitor Center & Chapel**
Visitor Center contains Academy displays, theater, gift shop, restaurant, restroom, and public telephones. Open everyday 9 a.m. to 5 p.m.
Chapel is one of the most distinctive buildings in the country and offers excellent view of the cadet area. Open Monday through Saturday 9 a.m. to 5 p.m. and Sunday 1 to 5 p.m. (except when closed for special events and for five days around graduation).
- Environmental Overlook**
Excellent photo points with a nature trail.
- Falcon Stadium**
Site of home football games and graduation.
- Thunderbird Airman'ship Overlook**
Offers view of flying at academies, displays on Academy airman'ship programs and USAF Thunderbirds.

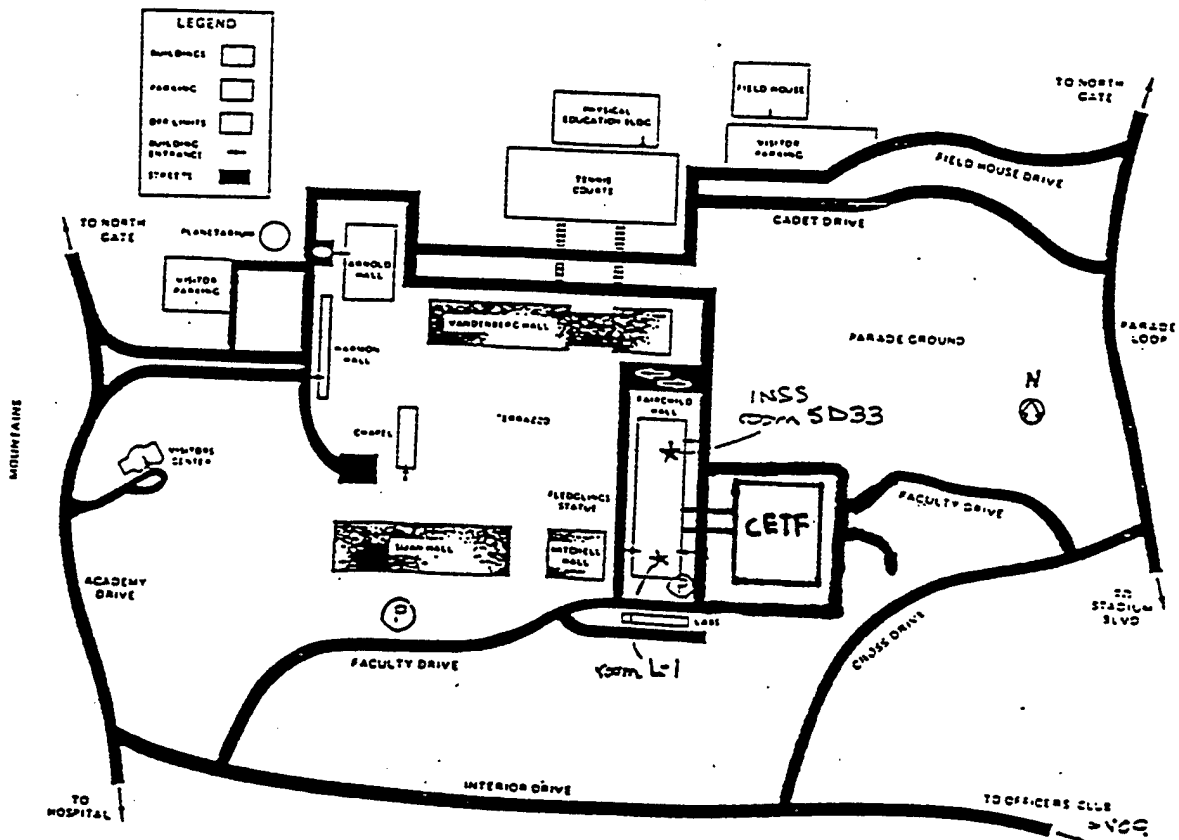
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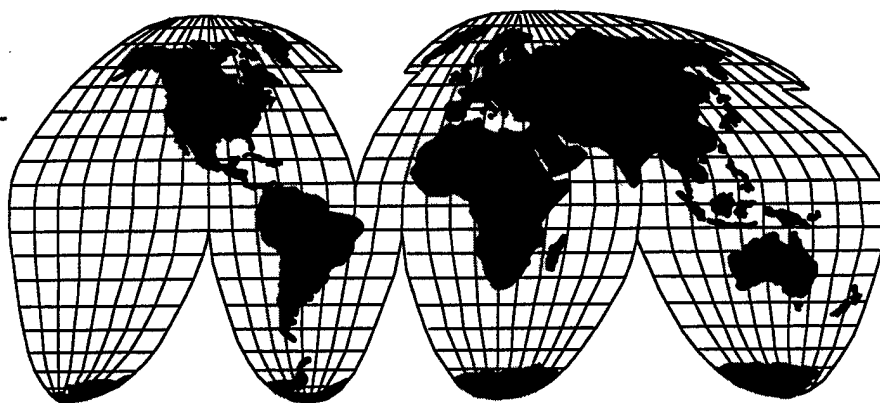


Fairchild Hall Conference Area Map



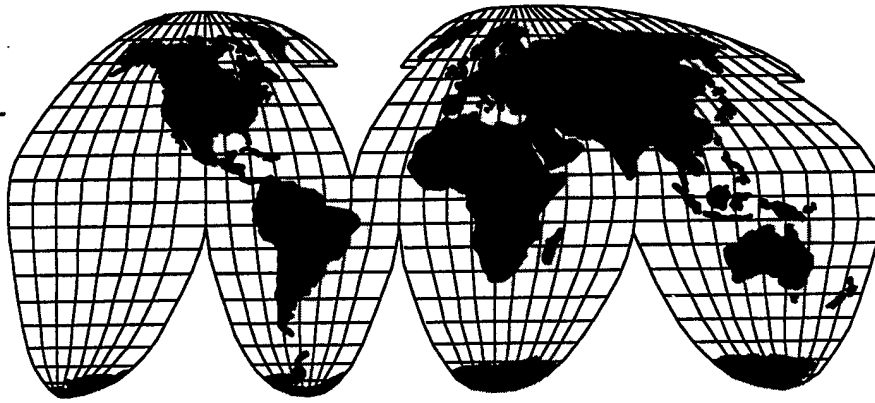
UNITED STATES AIR FORCE ACADEMY
CADET AREA





Appendix

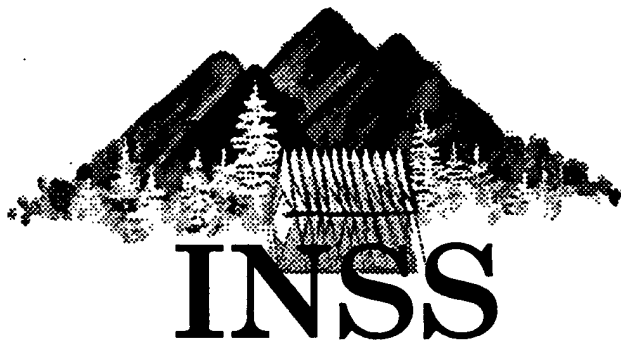
1997 Research Conference



Appendix A

Executive Summaries

1997 Research Conference



USAF INSTITUTE FOR NATIONAL SECURITY STUDIES

5TH ANNUAL RESEARCH RESULTS CONFERENCE

13 - 14 NOVEMBER 1997

~~-EXECUTIVE SUMMARIES-~~

Panel 1: ARMS CONTROL
Lt Col Jeffrey Larsen (INSS), Chair

Lt Col Gwendolyn M. Hall, Maj (S) John T. Cappello, and Capt Stephen P. Lambert (USAFA/DFPS and 34th EDG)

--Responding to Political Pressure to Denuclearize the U.S. Strategic Arsenal: U.S. Nuclear Arms Control Strategy for the 21st Century

Senior Chief Petty Officer Michael E. Dosier, USN (JMIC)

--Devising an Effective Arms Control Verification Regime for Monitoring Warheads

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--The Coming Revolution in Arms Control

Panel 2: COUNTERPROLIFERATION
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--U.S.-Russian Collaboration on Ballistic Missile Defense in the Post-Cold War Era

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--U.S. Nuclear Nonproliferation Goals in South Asia: A Case for Reassessment

Dr Peter Lavoy and Dr James Wirtz (NPS)

--WMD Use Concepts and Command and Control Practices

Panel 3: SPACE POLICY
Lt Col Guy M. Walsh (NDF, INSS), Chair

Maj David R. Levy (ACSC)

--Space Operations for the 21st Century: A Functional Approach

CAPT Robert E. Klingseisen, USA (USMA)

--Commercial Communications & Remote Sensing Systems Susceptibility

Capt Robert D. Morrill (NPS)

--Direct Broadcast Technology in Bosnia: Impact on Decision Making Processes and Joint Endeavor Operations

R. Chris Krance, GM-14 (AWC)

--Launch Infrastructure: Critical to EELV Success

Panel 4: AIR FORCE POLICY
Lt Col Kurt J. Klingenger (OSD, Strategy and Requirements), Chair

Maj Marguerite Palmer (ACSC)

--Can Air and Space Power be Decisive Instruments of National Power?

Dr James M. Smith (USAFA/34th EDG)

--How Can the Air Force Develop a Coherent Service Identity?

Col (S) David G. Estep (NDF, INSS)

--Joint Vision 2010: Focused Logistics and Air Mobility

Panel 5: INFORMATION WARFARE

Lt Col Greg White, (USAFA/DFCS), Chair

Maj Mark M. Nickson (ACSC)

--Vulnerability of U.S. and International Financial Markets to an IW Attack

2Lt Valarie A. Weber (USAFA/DFPS)

--IW and Corporate America: What Can the Military Learn? (Tentative)

Lt Col Cathy A. Dreher (NDF, Boston University)

--IW Concept and Its Potential Effect on Intelligence Collection

Maj Sue B. Carter (ACSC)

--Shot to the Space Brain: Vulnerability of C2 for U.S. Space Systems

Panel 6: REGIONAL SECURITY (Asia)

Dr William E. Berry, Jr. (University of Colorado, Colorado Springs), Chair

CAPT Derek F. Offer, USN and Col (S) Peter J. Bunce (NDF, Harvard)

--Iran: Is Dual Containment Working?

Maj David J. Johnston, (JMIC)

--The Threat to U.S. Forces Associated with a Reunified Korea in 2012

Professor Joan Johnson-Freese (AWC)

--The Chinese Space Program: A Mystery Within a Maze

Panel 7: REGIONAL SECURITY (Russia)

Col (S) Paul Selva (OSD/NA), Chair

Dr Jacob W. Kipp (FMSO)

--Alternative Russian Futures and Their Implications for U.S. National Security

Lt Col Brenda J. Vallance (USAFA/DFPS)

--Russian Military Security Issues and the Implications for U.S. Policy

Professor Roman Laba (NPS)

--The Russian Cossacks: A Four Million Man Military Force and the Russian State Today

Panel 8: REGIONAL SECURITY (Africa)
Maj Deborah A. Shackleton (USAFA/DFH), Chair

Stephanie D. Brenninkmeyer (JMIC)
--Options for Conflict Resolution in Sub-Saharan Africa

COL Dan Henk, USA (Army WC)
--Improving the Conduct of Military Operations Other Than War in Africa

LTC Karl E. Prinslow, USA (FMSO)
--Future Security Assistance Policy and Programs for Africa

Panel 9: REGIONAL SECURITY (NATO)
Mr. Oleg Ivanov (INSS), Chair

Maj Marybeth Ulrich (USAFA/DFPS)
--Russia, It's Neighbors and an Expanding NATO

Professor Robin H. Dorff (Army WC)
--A New and Larger NATO: A Vehicle for Promoting U.S. Arms Control and Nonproliferation Objectives

Lt Col Peter H. Liotta (Naval WC)
--No Man's Land: Five Oxymorons from Balkan Deconstruction

Panel 10: ENVIRONMENTAL SECURITY
Mr. Robert Jarrett (AEPI), Chair

Capt Ed Oshiba (AFIT)
--DOD Hazardous Waste Site Remediation Issues in Korea

COL F. M. Lorenz, USMC (ICAF)
--Security Implications of Regional Water Shortage in the Tigris-Euphrates Basin

Dr Charles Krupnick (USAFA/34th EDG)
--Submarine Nuclear Reactors in Russia's Northern Fleet: Environmental Concerns

Capt Paul J. Valley, (USAFA/DFB)
--Environmental Security in the Czech Republic: Concerns and the Potential for Conflict

Panel 1: ARMS CONTROL
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--The Coming Revolution in Arms Control

A Post-Cold War Nuclear Strategy Model

John T. Cappello, Gwendolyn M. Hall, and Stephen P. Lambert
USAF Department of Political Science and 34th Education Squadron

Executive Summary

Almost a decade has passed since the beginning of the collapse of the former Soviet Union and the end of the Cold War. While the strategic calculus of global security has changed, nuclear weapons still occupy either a real or a perceived role in assuring the security of the world's major powers. While certain advocates call for dramatic reductions in nuclear forces, no serious attempts have been made to reconceptualize the role of nuclear weapons in overall U.S. post-Cold War national security strategy. In this post-Cold War era it seems that the most difficult thing for many in the nuclear strategy business is to accept the fact that we have either entered into a new phase of the old debate, or that the beginning of a new debate is emerging.

Why the need for deterrence? This is not an elementary question because the conditions requiring it then are the same conditions requiring it in some other period, unless something changes drastically. Two very well respected scholars in international relations and national security policy note the five consequences of state behavior that are a "vital" part of the role military power plays (including nuclear weaponry):

- All states must fend for themselves.
- All states must make provisions for their physical security.
- In an anarchic setting, each state must put concern for its short-term position relative to others above concern for the long-term absolute gain of all.
- All states in anarchy are in a position of strategic interdependence.
- States in anarchy can not afford to be moral.

If this was the basis for deterrence then, and these conditions have not changed, then this will be the basis for deterrence until they do.

With regard to Russia, there is no comprehensive elaboration of the contemporary Russian approach to the role of nuclear weapons in Russian and international security, nor does there exist a full consensus on all details. However, certain key thoughts can be identified within the current debate. First, in the view of most Russian military planners, strategic nuclear weapons are the foundation of international security because they are believed to prevent war among the major powers and possibly regional wars as well. Nuclear weapons are also seen to guarantee Russia the status of a great power and provide the last line of defense. Third, theater and tactical nuclear weapons are viewed as providing defense against local threats, which are usually associated with Russia's Southern Flank. Finally, nuclear weapons, both strategic and tactical, also are seen as fulfilling an additional deterrent role--that of providing security for other newly independent states. Beyond this consensus, however, Russian strategic calculations are affected by the disarray in Moscow's decision-making system on strategic programs and arms-control talks, and this has led to confused priorities in defense policy and wide divergence between force planning, budgeting, and arms control agreements. The prospects for future fruitful arms control efforts are therefore indeterminate, especially given the Russian perspective that nuclear weapons remain Russia's last reliable and credible security guarantee. Confidence building and transparency measures aside, a meaningful interchange between the two sides will rely on the consolidation of the highly divergent opinions and trends within the Russian domestic political scene. It is with this in mind that future arms control efforts should be handled with steadied caution and conservatism and a pronounced demand for Russian reciprocity.

With these things in mind, the authors advance the following key assumptions for consideration when developing a post-Cold War U.S. nuclear strategy.

1. Nuclear deterrence, as an operating concept, is not in danger in the near- or long-term.

2. Nuclear deterrence will not require the same numbers of weapons, mix of weapons, or alert status of weapons as it did during the past fifty years
3. The focus should turn to non-strategic nuclear weapons in an attempt to increase crisis stability, and reduce the possibility of "loose nukes."
4. If strategic numbers decline dramatically and tactical nuclear weapons are virtually eliminated, then nuclear defenses become more defensible to those who were once opposed to them.
5. General Goodpaster's summation of the political and military realities, and thus, what the U.S. should do seems to be the likely course of action regarding nuclear weapons in the post-Cold War era.

The elimination of most nuclear weapons is realistic, beneficial in terms of enhanced security and well worth the time, attention and best efforts it will demand from U.S. for a long time to come. The elimination of all, is for the present still well beyond our grasp; no one today knows whether, when or how it can prudently be done. But in practical terms the United States is far from needing to make that decision. Ten years or more will be required to dismantle the weapons already marked for elimination—at 2000 or so a year, roughly the same rate at which we and the Soviets were each able to build them during the Cold War. During the time it will take we can see how well the Non-Proliferation Treaty succeeds, what is done with the Comprehensive Test Ban Treaty, and how the world security environment develops, particularly as among the major nations. During that time we should make sure that the U.S. nuclear weapons arsenal is safe, reliable and adequate to our needs.

General Butler is right on the point that it still looks like the Cold War particularly with regards to U.S. nuclear strategy and posture. That is, not much has changed. *One reason for that is that not enough has changed.* One problem is that when there were those consistent calls throughout the Cold War to dramatically reduce or eliminate the nuclear arsenal, no one specified the conditions under which this could happen. Had they done so, General Butler's task would have been easier. So, now the question has to be—what does the world need to look like before such measures could be contemplated?

Devising an Effective Arms Control Regime for Tracking, Monitoring, and Verifying the Elimination of Nuclear Warheads

Michael Edward Dosier
Senior Chief Petty Officer, U.S. Navy

Abstract

Possibly the most serious threat facing the United States or the world today is the threat posed by the existence of tens of thousands of nuclear warheads and components of nuclear warheads produced during the Cold War. Although there have been several nuclear arms control treaties concluded during the past decade, which have significantly reduced the means for delivering such weapons, no existing treaty provides for reducing the number of warheads removed from those systems.

Modern nuclear warheads are very complex devices with as many as 8,000 components. Additionally, the special nuclear materials used in these nuclear weapons are not easily eliminated. In fact, the only way elimination of the fissile materials can be achieved on earth is by detonation. These two factors greatly complicate the process of developing a regime to track, monitor, or eliminate these warheads. However, the author concludes that such a regime is not only necessary, but a viable possibility as well.

While researching the thesis topic, the author interviewed many authoritative personalities, with a broad range of views, and found that the opinions varied primarily in two areas. The first was in the procedural requirements that should be incorporated in the verification regime, and the second was in the regime's scope. The approach proposed by the author is one that he believes will be feasible, providing a high degree of confidence, while not so intrusive in nature as to be politically unacceptable. The key to success in a warhead regime is going to be the amount of openness or transparency contained in its provisions, particularly concerning the exchange of data. Attempting to locate hidden warheads and components of warheads would be an impossible task. Confidence will be gained in a warhead regime with the continuous verification over time that the information provided by the inspected parties is consistent with reality.

This thesis attempts to familiarize the reader with a challenging subject from a treaty implementer's perspective. To this end, the author provides the reader with the fundamentals of nuclear detonations in order that an appreciation may be gained for what constitutes a nuclear warhead. Second, a very brief history of recent nuclear arms control treaties and treaty-like agreements is discussed to provide a background, concerning the foundation upon which current treaty negotiations are based. Third, the author discusses key issues that drive treaty provisions. Fourth, elements are presented necessary to satisfy requirements of a regime for nuclear warheads. Lastly, the author will propose specific methodology, which he considers necessary to the effective implementation of an inspection regime to track, monitor, and verify the elimination of nuclear warheads.

Issues on the Arms Control Horizon

By LTC John D. Becker, USA,
Blair Schantz, MAJ, USA and William Casebeer, Capt, USAF
USAFA Department of Philosophy and Fine Arts and Civil Engineering

ABSTRACT

Within the next twenty years, two major issues will impact arms control efforts; one development will be substantive insofar as it will represent a change in the way we view exactly what arms control *is*, while the other development will be procedural insofar as it will change the manner in which arms control efforts of any kind are formulated, negotiated, and implemented.

In his paper, MAJ Blair Schantz, with the assistance of C2C Timothy Baumgartner, focuses on a major substantive change that will impact arms control efforts of the future. They argue that we must reformulate arms control to consider global environmental issues that will pose a serious threat to regional political stability in the 21st century. Foreign nation environmental problems can easily spill over their borders and influence regional conflict. The national security policy of the United States is developed from the perceived and actual sources of conflict, which have a direct influence, according to the 1996 National Security Strategy, "on our people, our territory, and our way of life". To protect our national security and foreign interests we must be proactive and partner with other nations to minimize and correct environmental impacts, especially in developing nations.

MAJ Schantz and C2C Baumgartner note that we define environmental security as any situation arising from environmental degradation which threatens to have a negative impact on the economic or political well-being of the United States. This definition can best be implemented by treating environmental issues as an arms control situation: the National Security Council sets strategic goals, the State Department establishes treaties and agreements to promote those goals, and other agencies such as the Environmental Protection Agency, the Department of Energy and the Department of Defense can verify and partner with nations to solve environmental issues.

In his paper, Capt Bill Casebeer focuses on developing technologies that will impact procedural concerns in arms control. No matter what we construe the term "arms control" to include, several imminent technological developments will impact our efforts significantly.

There are three issues on the arms control horizon that has the potential to effect far-reaching and fundamental changes in the way we "do business" in the arms control world. All stages of arms control—from the initial need for a controlling treaty, to treaty negotiation proper, to funding and enforcement for any agreements reached—will be affected by the technologies behind these fundamental changes. In much the same way that information technology has caused what many observers believe to be a revolution in military affairs, these closely related technological advances that are in their nascent forms now but will be realized fully in the next twenty years will cause a revolution in arms control affairs. These technologies are: advances in virtual reality, the development of robust artificial life and artificial intelligence, and public availability of high resolution remote sensing multi-spectral imagery. Taken as a whole, these three areas of technological revolution will have the effect of making every stage in the arms control process largely transparent to the United States public and, as the rest of the world reaches the same level of adroitness in the information manipulation realm as we have, to the citizens of practically any nation. Many long-standing problems in arms control verification will be solved, but a host of new problems will emerge as a result. Capt Casebeer's paper will examine each of these three areas of technological advancement in turn, briefly identifying the pertinent developments in each, highlighting how these developments will impact our attempts at arms control both positively and negatively, and will conclude with a general summary of the impact that transparency will have on arms control efforts of the future.

Anyone involved in the formulation, implementation and enforcement of arms control efforts in the future would be well served by a re-examination of the way they do business in light of the substantive and procedural changes that MAJ Schantz and Capt Casebeer discuss. The arms control "horizon" is not very far away, and unless we consider these emerging trends and technologies, we risk acting on an outmoded conception of what arms control *is* and what it will be *affected by* in the immediate future.

Panel 2: COUNTERPROLIFERATION
Lt Col Alex Ivanchishin (XONP), Chair

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Dr Peter Lavoy and Dr James Wirtz (NPS)

--WMD Use Concepts and Command and Control Practices

The "Peace-Shield Partnership": Prospects for U.S. - Russian Collaboration on Ballistic Missile Systems

Capt Donald P. Lagator, Jr. and 1st Lt Brett L. Mers
AFSPC

EXECUTIVE SUMMARY

Introduction

The U.S. today is completely vulnerable to ballistic missile attack. Ever since the Nazis developed the V-2 the threat has existed. In the decades immediately following World War II, missile know-how was "high-tech, knife-edge, state-of-the art" research science. Today, any decent physics or engineering student can produce the plans for a missile of extended range and medium accuracy. There are currently upwards of 25 countries in the world known to have some sort of ballistic missile capability and unfortunately, not all of their interests are aligned to U.S. interests. As we move through a post-Cold War era it has been proposed in some circles that the world leaders in ballistic missile technology and ballistic missile defense development should come together to create a "peace-shield partnership." A partnership between the United States and Russia to develop and deploy ballistic missile defenses to counter an attack from our common enemies. Prior to such collaboration one question must be asked: Does the U.S. and Russia share a common ground on ballistic missile defense? Before there is any movement towards making this collaboration a reality we must look at both sides of this proposed partnership: the U.S. views and the Russian views on this subject. It will begin with the United States perspective. This will include U.S. debate, proposals and current policy positions on ballistic missile defense (BMD). The paper will then offer a mirror image of the debate from the Russian side. From here we can look at the issue of and the concerns over collaboration.

The U.S. Side

The U.S. BMD debate has been ongoing nearly ever since the bomb first exploded on Trinity test site in 1945. Since the beginning of the atomic age the offensive/defensive debate has been surprisingly uniform with very similar positions being bandied about at different times. To start, the years between 1957 through 1960, U.S. policy on BMD was reduced to inter-service rivalry. The Army was in favor of a defense-reliant strategy. However, the Air Force seemed worried that this might detract from their offensive long-range bomber force and developing missile forces. By 1965 the argument went public. President Johnson ordered Defense Secretary McNamara to proceed with ABM defense. McNamara directed that the first ABM deployment be done at Boston, the home base of the left wing, anti-ABM establishment. The result was predictable-massive public protests. It was this that the incoming Nixon administration had to deal with at the start of 1969. On March 14, 1969, President Nixon changed the name of the short-lived ABM system to "Safeguard" and moved the interceptors away from the cities. The focus was now to be the protection of U.S. assured destruction capability, not population defense. By the beginning of the 1980s debate on such matters exploded with President Reagan's March 1983 speech. The speech told of a program that was designed to do what the American government was instituted, developed, and charged to do; defend the American property and people. President Reagan's vision put the emphasis back where it belonged, on defense. If one can learn anything from history, the fact that the U.S. failure to deploy strategic missile defenses is not now, nor ever has been a question of technical capabilities. The ultimate reason that we have not deployed such defenses is political in nature, the principles and expression of which is embodied in the ABM Treaty of 1972. Baker Springs of the Heritage Foundation best summed this up when he said: "While there may be several paths to deployment of a global missile system, the problem is that they all converge at one intersection where the ABM Treaty sits." The irony of the situation is that the U.S. signed an agreement to leave itself vulnerable to an adversarial power. Little wonder that there have been repeated calls in recent years to invoke Article XV of the treaty and withdraw from the treaty. The changing strategic challenges that face the country in today's world have generated a good deal of support for just such a withdrawal. Support in the U.S. Congress has been growing. The "Defend America Act of 1995" (H.R. 2483) and the "Strategic Anti-Missile Revitalization and Security Act of 1996 (S. 1562) are bills designed to force the administration to began withdrawal procedures.

The Clinton Administration seems to have accepted strategic reality, at least in some measure. Some of the current programs to develop and deploy theater missile defense (TMD) for U.S. forces may violate ABM treaty prohibitions. These prohibitions are being addressed in ongoing negotiations with the Russian government. Thankfully, the Russian government has an appreciation of the validity of the ballistic missile threat and seems inclined to allow TMD systems to be deployed. According to the Clinton Administration, while the ballistic missile

threat does exist, there seems to be no real reason for alarm. Therefore, the administration has put off any deployment decision regarding national missile defense (NMD) until the year 2000, the so-called "Three and Three Approach." This is a decision to continue research on NMD and be able to deploy a system within three years of a go-ahead. Such a policy seems to be nothing more than a continuation of the inclination of past U.S. administrations to walk a middle-of-the-road position and avoid what they perceive as possibly costly political decisions. The current basis for this position is largely contained in the CIA's National Intelligence Estimate 95-19 that came out in the fall of 1995. In short, 95-19 states that there is no need to hurry with NMD due to the fact that "no nation beyond major declared nuclear powers will be capable of hitting the U.S. with ballistic missiles until at least 2011." As support for their position, administration officials also point to electoral politics. Robert G. Bell, senior director for defense at the White House National Security Council, declared that the issue of BMD just doesn't seem that important to the American public and as evidence, cited the last presidential election. According to Mr. Bell, Bob Dole attempted to make an issue of BMD and he lost the election. Therefore, the American people don't care that much about BMD. The Russians in turn have not dealt with such political concerns in regard to BMD. For them the will was always there; it was the technology that determined the pace of deployment.

The Russian Side

The Soviets had debated the use of space in missile defense from the infancy of the ballistic missile threat. In the mid-1960s a debate over the feasibility of building an effective BMD system flared up in the pages of *Military Thought*, the confidential journal of the General Staff. In this debate spokesmen for the National Air Defense Forces pushed for the construction of a large ABM system around Moscow. The developed Moscow system continues to be the only operational ABM system in the world. At the close of the 1960s there was a shift in Soviet policy on BMD. Some Soviet economists reached the unorthodox conclusion that the USSR was less technologically capable than the West, and their views filtered into the outlook of foreign-policy specialists and some Politburo members. This controversy coincided with a debate over the desirability of beginning talks to limit offensive and defensive strategic arms with SALT I and the ABM Treaty. In these internal deliberations, the supporters of arms talks were usually pessimistic about the Soviet technological future, whereas the opponents of negotiation remained optimistic about the USSR's prospects of surpassing the West technologically. By the mid-1980s, Soviet writings suggested that some sort of advanced non-nuclear energetic materials could be developed to drive extremely powerful directed-energy weapons. In June 1985, an article in the Soviet Air Defense Forces journal made a technological assessment that laser and beam weapons potentially could be made powerful enough to attack hard strategic targets.

In October 1991, an article in the General Staff journal pointed to a tendency towards "the natural expansion in the sphere of deploying strategic forces into space, the acquisition of effective potentials for conducting combat actions in space and from space to earth." From the role of supporting strategic offensive forces, the article continued, orbital objects are thus "likely" to evolve into means for "carrying anti-missile weapons with limited offensive capabilities with respect to earth" and "space systems for delivering strikes on earth targets." Some called for these forces to become a direct component of the strategic forces designed for "accomplishing strategic missions" together with the strategic nuclear triad and the Anti-Ballistic Missile Defense Forces. In October 1992, Russian Defense Minister Pavel Grachev appointed General-Colonel Vladimir Ivanov to be commander of a newly created combat branch of the armed forces called the Military Space Forces. Ivanov stressed that "priority development of space systems ensuring effective support to operations by troops and naval forces, attack warning, and deterrence against aggression in space and from space is consistent with Russia's national security interests and maintaining strategic stability in the world."

Concerns Over Collaboration

The idea of collaboration between the U.S. and Russia invites concern over the technology each side would bring to a partnership. The Soviet Union developed a sophisticated network to detect the moment of launch of a hostile missile in any part of the world. They established radar stations along the entire former Soviet borders and sent an entire constellation of satellites into orbit to detect any launch. After the break-up of the Soviet Union, the Russian military lost use of missile warning radar stations in the Ukraine, Latvia, Azerbaijan, Belarus and near Krasnoyarsk. Half of the Soviet satellite control stations also ended up abroad in Ukraine, Georgia and Kazakhstan. Due to the loss of ground control centers outside of Russia, the missile warning satellite network has deteriorated rapidly. Even Defense Minister Rodionov himself stated: "Because of the shortage of satellites we sometimes cannot conduct the necessary observations (satellite contacts) outside Russia for hours." This has led to the Central Intelligence Agency (CIA) to fear that the Russians may miscalculate U.S. actions during a crisis. The CIA fears that the Russian missile warning network might wrongly think they were under attack from the West and in turn would cause them to launch a nuclear strike.

Another key concern for the United States in dealing with the Russians is in regards to the sharing or transfer of BMD technology. There could develop the possibility of this technology falling into third-party hands. In the shift from a state run economy to a free-market economy several members of the Russian military-industrial complex have become quite autonomous operators as compared to Soviet days. Russian chief designers have less supervision from above and have been more willing to aggressively peruse sales on their own. These budding capitalists also are not impeded by diplomacy in order to make the sale. When considering a BMD collaboration between the Russians and the U.S. the question to ask is: "Who are our common enemies?" The list of Russia's best arms exports customers reads like a "Who Hates the U.S. the Most - Top Ten List." With such notables as Iran and North Korea, the debate over which this BMD collaboration would protect us from is further clouded. Yet the ultimate question would be if there is possibility that future BMD partners could become future enemies down the road. With the continued instability of Russia's economic and political status, and the growth of nationalists and ultra-nationalists in home politics, a drift in U.S./Russian relations is all the more possible in the future. Finally, the instability of Russia's nuclear forces and the growing concern over the officer corps who control these weapons places added weight to the decision that the U.S. would make. Faced with these concerns, the U.S. has every reason to be cautious when examining such a significant collaboration.

Concerns with the Russians aside, this does not lessen the U.S. responsibility to develop their own BMD. Some have tried to place part of the responsibility for the lack of U.S. BMD with the military services. For example, Baker Spring of the Heritage Foundation says that the military services are ambivalent about missile defenses. The services are purported to be more interested in ground warfare, air warfare and surveillance, and naval warfare. This is to be expected from military organizations that are responsible for fighting tactical campaigns in a particular physical medium. While a case can be made for the services expanding their vision to include BMD (as indeed they already have), the civilian leadership is responsible for policy guidance and development of grand-strategy. Until the civilian leadership provides political freedom, clear guidance, and sufficient resources to the military services, one cannot expect them to do much more than they have already done. After all, in our representative republic the military is the tool, not the maker, of policy.

Conclusion and Recommendation

The U.S. and the Soviet Union both recognized over the years the importance of ballistic missile defense. They both shared a history of active debate on the subject, development of BMD technologies, and developed policies on BMD. Yet the Soviets were more consistent on the ability to deploy such systems, and it is this history that Russians have undoubtedly benefited from. In recent years the United States has brought to fruition a myriad of next-generation ballistic missile defense technologies that they could deploy over the next decades. Russia in turn has similar technology developed, but is prevented from deployment due to their current economic crisis. Delayed only by the will to commit, the U.S. is faced in a collaboration project with the decision to wait for the Russians or to continue on alone.

Obviously our primary consideration for the possibility of collaborations between the United States and Russia on ballistic missile defense is "Is it in the best national security interest of the United States?" The answer must be no. The U.S. cannot afford such a venture at this time based upon the uncertainty of Russian deployment capabilities, the disintegration of the current Russian systems that would be used in such a venture, and ultimately the full commitment of Russia as a loyal ally. Furthermore the inherent dangers of the sale of American BMD technology by the Russians to nations hostile to the United States, and the uncertainty of continued good relations should warrant greater prudence in committing to a collaboration project. However, in the end, it still does not diminish the responsibility of the United States to deploy their own BMD systems.

TRAINING AND EDUCATION FOR SPACE OPERATIONS OUT TO THE YEAR 2025

Maj Martin J. Wojtysiak
Air Command and Staff College

Executive Summary

As the United States military prepares itself for the next century, many people are making very bold claims about the future of military operations. One of the boldest claims is the Air Force's about being on the evolutionary path from an air force to an air and space force, and eventually becoming a space and air force. In order for this vision to become a reality, several steps must be overcome. The most obvious would seem to be technological. Without the proper tools, space forces will never become the dominant force in military operations. The Air Force's studies for *New World Vistas* and *Air Force 2025* provide the best examinations of future technological advances required to make this change. Although not as visible, concepts of operation are at least as important, if not more so, than the systems which will be developed over the next few decades. Effective education and training programs should provide the foundation required to visualize, develop, test, implement, and evaluate these new concepts. As the concepts become better developed, the military space community will be able to better refine its vision for the future of space operations.

Comparing future visions of military space operations with current space operations, one can easily see many of the major obstacles needing to be overcome. Education will prepare people to approach existing or new problems in a new and creative way. Once these new approaches are developed, the operators must be prepared to execute the mission. Effective training programs provide the necessary skills to ensure these missions are executed effectively. The basic goal then of training and education for space operations should be to make space operators smarter on warfighting operations, make warfighters smarter on space operations, and make everyone more effective at integrating space capabilities into theater warfighting and national defense campaigns.

Some of the most exciting developments in the future of education lie not within new systems, but within the human mind. As scientists continue to learn more about how the human mind works, educators and trainers will be able to more effectively exploit the students' natural abilities. Adult learning is a well-defined field, and course developers should carefully examine its principles when creating new courses. A newer field that is still in its infancy is accelerated learning. Accelerated learning enables people to learn much more information, more quickly and efficiently than traditional learning methods. One of the common characteristics from both the adult learning and accelerated learning is the students must be ready to learn.

Students' readiness to learn is typically built around real world experiences. If the students perceive the course as being relevant to their current position, they will be willing to dedicate themselves more fully to the course. In order to make courses, particularly education courses, more relevant, they have to be built for the students' unique needs. The current paradigm of Professional Military Education (PME) does not satisfy these requirements. More Professional Continuing Education (PCE) may hold the key to just-in-time education that is relevant to the students' current positions.

PCE programs should be customized based upon the student's rank, career field, and current position. At the tactical level of war, space operators need to have a thorough understanding of their own service's mission and develop a sound foundation about space systems and capabilities. They must also have a basic exposure to the concept of a space campaign. If one thinks of education in a broader sense than just courses, then changes in assignments at the tactical level may also be required. By assigning space operators for a short tour with a theater warfighting unit, the operator gets a better understanding of how space capabilities impact other operations.

At the operational level of war, the primary focus should be on the development of a space campaign. This seemingly easy task may be the key to unlocking the military space community's full potential. Currently, there is

no clear definition of military space power; let alone the principles of a space campaign. In order for space operators to develop the concept of a space campaign, they must first have a thorough understanding of a theater warfighting campaign, as well as, national level constraints on fighting in, to, from, and through the space environment.

PCE courses at the operational level will be broken down into two categories. The first one will focus on how space capabilities can support theater warfighting campaigns. These space capabilities will include civilian, commercial, as well as military capabilities. The course will include both warfighters and space operators. The second category will be on how to conduct a space campaign. This course will be focused primarily on space operators, but it will also include how warfighters may need to provide support to the space campaign.

Education at the strategic level has the greatest potential for changing the current paradigm of space operations, but it also lies beyond the military's control. Strategic level issues include the weaponization of space with antisatellite and ballistic missile defense systems; space roles and missions within the military; roles and missions between the military, civilian, and commercial sectors; the military's acquisition process; and US Space Command's organizational responsibilities. Most of these issues are tightly controlled by Congress and the military needs to respect this boundary. The best the military can do is to develop its arguments as strongly as possible for these issues and try to persuade national leaders to thoroughly examining the issue.

Training provides the necessary skills to get the job done. Similar to education, training requirements are broken down into the tactical, operational, and strategic levels. Unlike education programs, training programs are fairly well aligned to take advantages of technological developments.

Training at the tactical level has the greatest potential for exploiting these developments. It is comparatively simple to determine the requirements for training operators on a specific system. Courseware developers will be able to integrate virtual reality, multimedia presentations, interactive courseware, and brilliant software to produce far more sophisticated courses. When these technological advances unite with the accelerated learning principles, courses will graduate operators who are closer to being mission ready and the course length itself can be reduced.

A potential area for savings in tactical training costs is through increased use of reserve forces. The reserve personnel (Air Force Reserves and Air National Guard) provide the ability of services to increase the number of warfighters or support personnel in times of crisis. The relative cost of maintaining the personnel in reserve status is much lower than that of active duty personnel. Another potential savings is reserve personnel do not change assignments as often as active duty personnel. It is quite possible for a reservist to spend his entire career working on a single weapon system. This increased expertise in a single system may prove invaluable during a crisis and also reduces the cost of retraining the operator on a new system.

Training at the operational level needs to focus on the implementation of a space campaign. This goal will require more realistic exercises, wargames, and simulations. A key point for these operations is they must remain focused on current capabilities and national policies. Training at the strategic level will focus on future capabilities and policies.

The key to a space campaign today is the Annex N in the operational plan. Annex N provides the framework for how space capabilities will impact the theater warfighting plans. One move the military could take to increase the effectiveness of space planning is to increase the number of historical space cases. The Gulf War Air Power Survey is the only complete historical analysis of how space capabilities impacted a military operation. Along the same lines, better after action reports, which included space capabilities, will provide a solid database for planners to draw from in developing and executing future operations.

Training at the strategic level blends with education at the strategic level. The results of recent space wargames and simulations have revealed two alarming concerns. The National Command Authority will need to be involved in most decisions involving conflict in, to, and from space. Also, our space systems and networks are very vulnerable to an offensive attack. By conducting seminar style simulations or wargames, actors at the strategic level will get a better understanding about how to invest time and money to ensure we become the space and air force of the future.

WMD USE CONCEPTS AND COMMAND AND CONTROL PRACTICES

Dr. Peter Lavoy and Dr. James Wirtz
Naval Postgraduate School

ABSTRACT

On 6-8 August 1997, the Department of National Security Affairs of the Naval Postgraduate School, with the support of the Center for Nonproliferation Studies at the Monterey Institute of International Studies, hosted a conference on Weapons of Mass Destruction (WMD) Use Concepts and Command and Control Practices. Organized by Assistant Professor Peter Lavoy, Associate Professor James Wirtz, and Associate Professor Misha Tsypkin, the conference brought together over one hundred individuals well versed in traditional approaches to the study and management of WMD and states and non-state actors that have recently acquired or might acquire WMD. The focus of the conference was to improve theory and information about how states and groups integrate WMD into their arsenals and how they intend to use these weapons to achieve political and military objectives.

The conference attracted representatives from over a score of government agencies. The United States Strategic Command, OPNAV Staff, the Air Staff, Defense Intelligence Agency, Defense Special Weapons Agency, Sandia, Lawrence Livermore and Draper laboratories, and Army and Navy Air Defense, for instance, sent participants to the meetings. Russian delegation of command and control experts, headed by Major General Vladimir Dvorkin, Chief of the Strategic Rocket Forces Research Institute, participated fully in the conference. Several foreign experts on WMD issues in China, India, Israel and Pakistan also presented their research. Congressman John P. Murtha (D-Pennsylvania) addressed the participants about the danger of WMD terrorism in the United States.

The August Conference in Monterey is just the start of a major research undertaking. In January 1998, an author's conference for research presenters will be hosted by Professor Scott Sagan at the Center for International Security and Arms Control, Stanford University. By early Spring 1998 a conference will be held at the Naval Postgraduate School to disseminate the project's findings and to provide a forum for DoD participants to discuss these findings. It is also expected that Professors Lavoy, Wirtz and Sagan will publish an edited volume of papers and materials produced by the project sometime in 1998-99.

On a related note, I am happy to report that the FY 95 project supported by INSS, Nuclear Weapons in a Transformed World, is currently in production at University of Michigan Press. It will be published in early 1998 under the title of *The Absolute Weapon Revisited*. INSS's support in making this volume possible will be acknowledged in the book's preface.

REPORTS PRESENTED AT THE CONFERENCE:

- (1) Michael Wheeler, "Early U.S. Nuclear Doctrine and Command and Control"
- (2) Valery Yarynich, "Russian Nuclear Doctrine and Command and Control"
- (3) Tim McCarthy & Jonathan B. Tucker, "Saddam's Strategic Arsenal"
- (4) Gregory F. Giles, "Iranian Approaches to Chemical Warfare"
- (5) Avner Cohen, "Nuclear Arms in Crisis under Secrecy: Israel and the '67 War"
- (6) Bates Gill and James Lamson, "China and WMD"
- (7) W.P.S. Sidhu, "India's Nuclear Use Doctrine and Command and Control"
- (8) Zafar Iqbal Cheema, "Pakistan's Nuclear Use Doctrine and Command and Control"
- (9) Seth Carus, "WMD and Non-State Actors: the Rajneesh Cult Case"
- (10) Jessica Stern, "Poison's Potential: Why Terrorists Might Escalate to WMD"
- (11) Joe Bermudez, "Democratic People's Republic of Korea: Motivation, Strategic Thought and Possible Employment of WMD"

Panel 3: SPACE POLICY
Lt Col Guy M. Walsh (NDF, INSS), Chair

Maj David R. Levy (ACSC)

--Space Operations for the 21st Century: A Functional Approach

CAPT Robert E. Klingseisen, USA (USMA)

--Commercial Communications & Remote Sensing Systems Susceptibility

Capt Robert D. Morrill (NPS)

--Direct Broadcast Technology in Bosnia: Impact on Decision Making Processes and Joint Endeavor Operations

R. Chris Krance, GM-14 (AWC)

--Launch Infrastructure: Critical to EELV Success

SPACE OPERATIONS FOR THE 21ST CENTURY

A FUNCTIONAL APPROACH

MAJ DAVID R. LEVY
Air Command and Staff College

Abstract

Present Air Force space doctrine and organizational structures are based on extrapolation of air power concepts. This has resulted in certain problems such as complaints of lack of warfighter support, unresponsive launch systems, and confusion over roles and missions like ballistic missile defense. The space community is also highly fragmented. Numerous agencies have been created recently to address some of these concerns, but these groups may just be adding to the lack of concentration of effort. Meanwhile, trends continue including the increased density and proliferation of commercial space assets through microminiaturization, reduced launch costs, and economies of scale, plus an increased dependency of US military forces on information from space-based force enhancement systems. This paper critiques present space doctrine and organization, looks at some trends and technologies as indicated in the *Spacecast 2020* and *New World Vistas* studies, and recommends doctrinal and organizational changes for more responsive space operations. Proposed are the space attributes of direct vantage, global access, endurance, and synchronization, and three space employment considerations of protection, standardization, and centralized space control. For organizing space forces, the acquisition, space control and apportionment of scarce payload resources should be centralized in a single agency, but the operations of nonstrategic force enhancement space missions should be relegated to the joint warfighters.

DEFENDING THE FUTURE BATTLEFIELD'S TECHNOLOGY: The Susceptibility of Space-based Remote Sensing Systems to Attack

Captain Robert E. Klingseisen

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United States Military Academy, USA

EXECUTIVE SUMMARY

The focus and purpose of this research is to identify the vulnerabilities of and threats to our space-based information age technology systems. The content of the research to be presented will highlight the public release information and Internet resources available to any user with the desire to acquire it. The policies and systems that will be analyzed are governmental and non-governmental policies, management of the electromagnetic spectrum, and satellite systems including navigation, communication, meteorological, and earth observation sensors and platforms.

The results of this research project could have been more fruitful with the elimination of three constraints. One, because this is an unclassified report, many sources of information could not be used. Two, time available to conduct the research was inadequate due to military and family responsibilities which restricted my ability to travel and conduct interviews. Three, if the first two constraints had been alleviated, funding would have been the limiting factor.

The people that should really be consulted are the manufacturers and research and development laboratory scientists who build and design these systems. Who better would know the system capabilities, characteristics, limitations and, hence, its vulnerabilities.

My approach to presenting this report is to first identify what space-based platforms are out there to be vulnerable. Access to information pertaining to national capabilities is extremely limited due to the classified nature of these systems. Even more difficult to obtain was information pertaining to other nations' national technical means.

For convenience and simplicity, I have categorized these platforms into four areas: Earth Observation, Meteorological, Communications, and Positioning/Navigation. Each of these four areas has vulnerabilities common to all systems and vulnerabilities particular to the specific platform based on utility and design. The means by which these vulnerabilities are addressed include Natural, Physical, Electronic, and Kinetic.

DIRECT BROADCAST TECHNOLOGY IN BOSNIA: ITS IMPACT ON THE DECISION MAKING PROCESS AND JOINT ENDEAVOR OPERATIONS

Capt Robert D. Morrill
Naval Postgraduate School

EXECUTIVE SUMMARY

History should have taught us that there is never enough available communications. The story of the soldier in Grenada making a personal credit card call back to headquarters on a public telephone will be etched in military history books forever as a grand example of how interservice parochialism and stovepipe systems lead to a lack of communications interoperability that adversely affects a battlefield. Desert Storm taught us another hard lesson about how inadequate our communications capabilities are when compared to what we think we need. We have learned. We have improved our interoperability and our capabilities, but we can never get enough bandwidth.

The DoD has piggybacked on the advances of commercial industry in the area of Direct Broadcast Satellite (DBS) technology to open the floodgates of information a little wider for the warfighter. Through the coordinated efforts of many commands, services, agencies, and other organizations the Global Broadcast Service (GBS) Program was initiated to provide a near-term increase in the military's wideband communications capabilities. A prototype of the GBS, the Joint Broadcast Service, is an Advanced Concept Technology Demonstration program that was rapidly deployed as a major piece of the Bosnia Command and Control Augmentation (BC2A) system. The JBS was used by the United Nations Implementation Force (IFOR) in Operation JOINT ENDEAVOR, and is currently being used by the Stabilization Force (SFOR) in Operation JOINT GUARD, in Bosnia.

I began this research based on the premise that the JBS was being deployed to be a valuable addition and provide immediate impact to the coalition forces in Bosnia. The main thrust of the research dealt with the impact the use of the JBS had on forces deployed to Bosnia. More specifically, I wanted to determine the impact this new capability has had on the decision-making process at higher levels of command and its effect on JOINT ENDEAVOR operations. Chapter I of this thesis provides a short introduction, and Chapter II gives a brief history of the commercial DBS technology and outlines the basics of the GBS as a basis for discussion. Chapters III, IV, and V present an in-depth look at the JBS architecture, how it was used (specifics about the broadcast such as information flow and availability, dissemination, and management), and the effect it had on the operation itself and the associated decision making processes. Chapter VI looks at the requirement for a theater injection capability, the advantages and disadvantages of two possible solutions, and the prototype development effort for one of those solutions. Finally, Chapter VII outlines the lessons learned from this research as well as my conclusions and recommendations. Appendices A and B are included to provide detailed information about files broadcast via JBS and the information management procedures for the BC2A.

The JBS system has, at least in part, answered the joint warfighter's need for an improved high-bandwidth video and data distribution system. It provides the ability to broadcast full fidelity video, imagery, and data at high rates to small, affordable, and portable terminals throughout the theater.

As stated above, I began this research looking at the JBS as a new operational tool for the warfighter that would be a major player in providing Information Dominance. However, as I got deeper into my research I realized that the JBS is not a well-developed system that was designed from the ground up for the military. It is a rapid prototype technology demonstration program and its *primary role* is to prove concepts and gain valuable experience to be applied toward the GBS program. Its *secondary role* is to provide a new tool for the forward deployed troops to use in their operations. Based on the results of my research, as summarized in this thesis, I determined that the JBS has performed its primary role superbly and its secondary role adequately.

Although JBS does have force enhancement capabilities, there is a collection of several things that have limited its effectiveness in Operation JOINT ENDEAVOR (as detailed in Chapters V and VII).

As the JBS continues to be used and improved the users will begin to recognize the capabilities it brings to the fight. The bottom line is that the JBS is not a panacea and does not solve our communications problems, but it is a definite success and its successor, GBS, will become one of our communications workhorses of the future.

LAUNCH INFRASTRUCTURE: CRITICAL TO EELV SUCCESS

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Air War College

EXECUTIVE SUMMARY

In August 1996, the Air Force published its 2025 report reviewing concepts, capabilities, and technologies to remain dominant in the air and space force of the future. It highlights by 2025; space is likely to be to the air as air is to cavalry today. It states there is a major increase in utility of space oriented systems and they are clearly the power investments to be made. Further, of the ten highest leverage systems to achieve air and space dominance, six were in the realm of low earth orbit and above. 2025 calls for a reexamination of the emphasis in the Air Force on traditional platforms, roles and missions.

Total United States (US) expendable launch requirements over the next 25 years exceed the capability of the current infrastructure. This shortfall has national security implications if we cannot replace defense, civil and selected commercial payloads on our terms. To compensate a revolutionary booster *family*, its processing, and facility infrastructure must be designed and constructed to support demand. Only with a redesigned *system* can the challenge be met for the technological future.

A new launch system is in acquisition. The US and Air Force will soon stand at the threshold of how efficient launch should be conducted over the next quarter-century. One contractor will develop the Evolved Expendable Launch Vehicle (EELV) and its facilities, to deliver unprecedented launch rates from a single family of boosters. United States launch history has matured through a half-century, manufacturing and assembling boosters in one-of-a-kind processes specific to payloads. Conceptual future launch however, combines attributes of current boosters with assembly line efficiency. An iconoclastic revolution of booster, processing, and facilities will be the foundation of EELV success.

Innovation in launch systems is not new. EELV response must resurrect US Advanced Launch System technology from the 1980s--the same technology used in the new European Space Agency (ESA) Ariane 5 launch system. The US is a distant second in expendable booster operations. EELV must respond to national strategy, but acknowledge budget constraints, that have already delayed system implementation and impact heavily on the vital interests of this country in not meeting launch requirements for the future. The prudent infrastructure options proposed in this research must be a critical element in the EELV system acquisition and the resource allocation process.

If we fail to develop 21st century launch efficiency now, we shortchange our troops in the field and compromise national security. Future satellite replacement in times of conflict may hinge on days or hours--not months, which is today's US processing times. Additionally, operational plans do not initially include the economy of joint funding with US commercial markets comprising nearly 50% of US launches and being contracted to foreign sources. Opponents also preach Single Stage To Orbit (SSTO) panaceas, but that technology is operationally 15 years in the future and in real-time, the US falls further behind in expendable space access. We must team for efficiency now and adopt innovation in space launch processing. Our 30-year old system technology and infrastructure should be the number one priority for US modernization to meet space requirements for more than a generation to come. Without a revolutionary total system, the EELV family will be disadvantaged against world competition already operationally advanced to meet the global demand of space launch.

The EELV System will be our space access for US Military and Civil Space requirements for the first two decades of the 21st Century, as specified in the Air Force's Operational Requirements Document (ORD), dated 18 Sep 96. The System specifies 25% less cost over current systems and an eventual 50% reduction in the annual cost of spacelift, for a *family* of launch vehicles. The level of investment the nation is prepared to make in a declining federal budget environment is \$2 billion.

Specific infrastructure to meet or exceed EELV National Mission requirements or Commercial Market Projections does not exist. Current operations integrate launch vehicles *on pad*, for one specific payload. The present Mobile Service Tower (MST), positioned directly over the pad, is the primary integration facility used to assemble the complete Launch Vehicle (LV). With assembly and checkout procedures protracting the critical launch path, the pad becomes the bottleneck to efficient and routine operations. Payload substitution or vehicle

changeout is overbearing, costly, and time prohibitive. Eleven launch complexes (pads) are operated between the two coastal launch complexes to meet requirements. These launch sites are located at Cape Canaveral Air Station FL (CCAS) and Vandenberg Air Force Base CA (VAFB). The ORD calls for orbiting essentially the same annual payload requirement as present, but preferably from *one pad only* at both CCAS and VAFB. The main reason for infrastructure reduction is each existing launch complex requires expensive facility Operations and Maintenance, manpower, and administrative funding inherent to current one-of-a-kind launch vehicles. Modifications and additions to existing infrastructure, re-orienting vehicle integration operations to comprehensive *off-pad* assembly line operations, will streamline the process.

EELV will radically change space launch operations. All major system elements from launch vehicle and payload processing, to facilities must subscribe to the innovation and economic challenge. Complete vehicle assembly operations will be away from the pad and incorporate a Manufacture, Integrate, Transfer, Launch (MITL) process. As the acronym summarizes, major components of LVs are *manufactured* in regions of the country and shipped to either CCAS or VAFB. Components including the upper stage space vehicle (SV) are *integrated* on a Mobile Launch Platform (MLP) into the complete LV in off-pad facilities at the location. After complete checkout of the integrated LV, it is *transferred* on the MLP to a "clean pad" for fueling and final systems check. If something is found deficient scrubbing a launch, the LV is transferred back to off-pad facilities for correction, freeing the pad for other launch requirements. Actual time on pad for final check can be as little as one day, and barring any further delay, it is *launched*.

Some component facilities essential to MITL are currently used, but the most critical facilities--Payload Encapsulation (PE), Final Assembly Building (FAB), and a Clean Launch Pad, *minus the MST and Umbilical Tower (UT)*, are not in the US launch lexicon. The most significant change in MITL operations is the pad being used *for launch only* and not assembly of the vehicle. Updated and consolidated component lines of manufacture, launch propellant systems, air conditioning, avionics, supply, and launch control must also be upgraded in the process.

The most critical consideration now is design of these facility elements into the EELV acquisition thought process. Inclusion of commercial participation in the program to optimize funding must also be rationalized. Comprehensive *System* design will insure interoperability, economic efficiencies, MITL concepts, and team quality management. All US space interests, including commercial endeavors, can benefit in this new technology, and together we can pioneer an innovative strategy for future launch processing.

Identifying facility infrastructure for comprehensive EELV mission success for more than a generation to come, is the purpose of this research. This paper documents present US space systems and shortfalls, reports the latest launch rates required by the National Mission Model and Commercial Market Projections, benchmarks the world space launch leader--Arianespace and their Complex at Kourou French Guiana, and proposes essential US space facility construction to meet 21st Century requirements. Future space launch strategy should consider fiscal constraints in the budget process, optimizing all sources of funding public and private. Therefore, commercial options will be recommended for greater economic launch efficiency. Implementation of recommendations will begin the US journey back to space launch preeminence. *Launch Infrastructure: Critical to EELV Success.*

Panel 4: AIR FORCE POLICY

Lt Col Kurt J. Klingenger (OSD, Strategy and Requirements), Chair

Maj Marguerite Palmer (ACSC)

--Can Air and Space Power be Decisive Instruments of National Power?

Dr James M. Smith (USAFA/34th EDG)

--How Can the Air Force Develop a Coherent Service Identity?

Col (S) David G. Estep (NDF, INSS)

--Joint Vision 2010: Focused Logistics and Air Mobility

AIR AND SPACE POWER: DECISIVE INSTRUMENTS OF NATIONAL POWER

Maj Marguerite "Peggy" J. Palmer
Air Command and Staff College

Abstract

Technology is shifting the paradigm of how future wars will be fought. Dominant Battlespace Knowledge will fuze command, control, communications, and computers, not only with precision force, but with intelligence, surveillance, and reconnaissance to provide the ability to determine in near real time what is happening on a future battlefield and to "act on it decisively." But what constitutes decisiveness? How will the US use current, as well as future air and space power, such as those systems described in *New World Vistas* and *Force 2025*, as decisive instruments of national power?

Desert Storm showed us how far air and space power could go in achieving the stated US national security objectives for the conflict. The American public, civilian, and military leaders are becoming more hesitant to commit US forces to situations, which are protracted or produce high casualties, unless they perceive a US vital interest to be at stake. One day it might be possible to win wars with air and space power as the only employed military instrument of power, thereby achieving a quick victory with minimum loss of life.

This paper first defines the term "decisive" and what criterion is required for air and space power to be decisive instruments of national power. Second, five historical campaigns from WWII, Korea, Vietnam, and Desert Storm are discussed in which US air power was used. Each conflict is analyzed to determine what airpower accomplished (effects provided), what could it have accomplished, whether it was decisive, and why or why not. Third, the concept of decisiveness is developed and shown to consist of four factors. The first factor is the enemy's cost/benefit analysis of accepting our national security objectives, the second is assessing the enemy's perceived vulnerability to our air and space power, and the third is how effective air and space power will be in compelling the enemy to do our will. This third factor is comprised of four interrelated elements:

- 1) effectiveness
- 2) cause-effect linkage
- 3) nature of the conflict, and
- 4) constraints.

The fourth factor is assessing whether or not a conflict can be ended in a timely manner.

Several planning tools, such as a matrix and a flow diagram, were developed to help determine what future conditions might allow delivery of effects which would result in decisive results for the employment of air and space power. A conclusion will be made regarding air and space power's utility as a political instrument of national power.

USAF Culture and Cohesion: Building an Air and Space Force for the 21st Century

Dr. James M. Smith
USAF 34th Education Squadron

Abstract

The Air Force has a cohesion problem, and it is firmly rooted in Air Force culture, subcultures, and organizational dynamics within the diverse, complex entity that is today's USAF. This paper analyzes the roots and the current manifestations of that cohesion problem--defines and develops the problem itself--as a basis for some broad suggestions as to how the USAF can begin to mold itself into a more cohesive force for the 21st century.

By the late 1980s the primary Air Force internal divisions revolved around technologies, with splits between pilots and all others; with space beginning to assert its claim on a piece of the core, and between the types of systems the pilots flew. The Air Force essence was centering on technology. Dr. Donald B. Rice, former Secretary of the Air Force, noted the overwhelming identification by USAF members with their weapon system over their service. Carl Builder characterizes the contemporary USAF as lacking any integrating vision, noting fractionalization with the space faction now heading off on its own toward a separate force future. He sees attachment to technologies without any glue to bind those technologies together around traditional roles and missions of airpower, with the result a dominance of occupationalism over institutional attachments. To Builder, the USAF has no strong, unifying mission or vision, so loyalty has devolved to functions, technologies, and occupations.

This study surveyed USAF officers to find more detailed answers to questions about what the Air Force looks like today--how it is oriented, where its main fracture lines lie, and what the intensity of its faultlines might be across specialties and ranks. The survey was administered to the students entering PME courses at Maxwell AFB, AL in the late summer of 1997. The study finds that the current picture is not quite as "bad" as one might think based on previous studies. It indicates that there is a common foundation upon which to build a more cohesive air and space force for the future.

The survey identified differences on Institutional/Occupational orientation based on rank, occupation, rating, PME completion, and joint experience, but the relative rankings of alternative missions, priorities, and allegiances indicated higher degrees of agreement across the USAF. The responses on technology and space indicated significant differences, and these must be targeted to bridge the gaps here. The key differences were on space, which stands out in this study as significant to the future of space within the USAF as opposed to space as a separate force.

So fractionalization was found, but for the most part the differences were perhaps not as striking as were some areas of similarity. The USAF line officer corps appears to provide a basic infrastructure upon which cohesion can be built. Building or fostering cohesion within a complex organization is a difficult task, but it is one that has been and can be successfully accomplished. What must be remembered is that culture change and cohesion are products of senior leadership reaching down into the organization--it is an internal, active, top-down process. It must begin with the clear definition of a single, unifying mission, and then that vision must be actively disseminated across the diverse subcultures and fractionated specialties before it can be embraced and begin to take effect.

The USAF strategy and structure must be realigned to achieve the critical operational tasks, roles, missions, and functions at the heart of the vision. This requires unified, active leadership reaching down to reshape the service through clear and cohesive guidance socialized across the organization. Key here is creating a cohesive and encompassing team focus around which the diverse subcultures and specialties can (and will want to) coalesce. Rewards and incentives, promotions, and training must all be brought into alignment with this team concept to provide the "glue" it needs to hold the reshaped service together until it fuses into a common whole. The new team must be socialized from the beginning of one's service, and the culture and vision must then be reinforced across

one's career, not just in formal PME programs, but also via active mentoring by leadership at every level. The informal dimension will be key to the broadest success of this socialization effort, and it rests in the active mentoring of their juniors by USAF leaders, a harder process to institutionalize and standardize. The final result must be changed output in terms of the performance and cohesion of the USAF team within and across the 21st century battlespace, and simple or singular attempts at solution may not be enough.

As the USAF completes this transition, it must also remember that the perceived coherence of the other US military services must not be taken as a direct "fix" to unique Air Force issues and problems. The Air Force is simply not the Army, nor is it the Navy, nor is it certainly the Marine Corps. The Air Force must find its own answers within its own set of cultures and pressures: it must define, build, and sustain its own team within and against its own mission and vision. The team must be built, reinforced, and employed as a team, not just its parts and the USAF incentive system must be aligned with that team concept. High-tech, complex, matrix teams can be productive, loyal, unified, and effective, and the USAF can and should expect or accept no less.

True, the Air Force has a cohesion problem. But the Air Force also has a common infrastructure upon which to begin to build its future, inclusive, more cohesive team. It needs to define that team, consolidate its missions around that team, and actively promulgate, reward, and support its vision into the 21st century air and space future. The effort must be extensive and pervasive, incorporating formal education and training but focusing also on day-to-day, unit-level efforts to live the team concept. It must come from the top, but it must reach down to and through commanders at all levels in a continuing, cradle-to-grave effort across each airman's career. The fracture lines are real, and the technological and mission diversity pressures tend to pull the Air Force apart, so it must put real and focused effort into pulling together, not as a single entity, but as a team coming into harmony around shared missions and common goals. A team effort is possible, even if a single unified entity is not, and the effort must be made to bring that team onto the field.

Joint Vision 2010's
FOCUSED LOGISTICS
&
AIR MOBILITY

A Dynamic New Capability
or
An Empty Promise to the Warfighter

By
David G. Estep

A RESEARCH PAPER PREPARED FOR
THE AIR FORCE INSTITUTE FOR NATIONAL SECURITY STUDIES
AND
THE NATIONAL DEFENSE FELLOWS PROGRAM

UNITED STATES AIR FORCE ACADEMY
COLORADO
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Executive Summary

"Joint Vision 2010 is the conceptual template for how America's Armed Forces will channel the vitality and innovation of our people and leverage technological opportunities to achieve new levels of effectiveness in joint warfighting." So begins the document, *Joint Vision 2010*. In the 21st century the United States will rely more and more heavily on CONUS based forces that can quickly deploy throughout the world in serving the nation's interests. The template provided by *Joint Vision 2010* proposes new operational concepts that will enable this strategy to be supported through rapidly deployable forces that are smaller, more agile, and highly effective.

The document, released in the summer of 1996, outlines areas of continuity for the future and other areas of dynamic change. It covers the critical factors necessary to consider during the implementation process from concept to capability, and outlines four operational concepts to build on for the future. These four operational concepts are: Dominant Maneuver, Precision Engagement, Full Dimensional Protection, and Focused Logistics. The next step is to further refine these basic concepts and move forward in the process to implement programs to enable them to become reality.

This effort is currently underway through a cross-service and cross-functional effort guided by the Joint Staff and the Joint Warfighting Center. It's formalized through the development of an Implementation Master Plan and a draft document *Concept for Future Joint Operations*. These processes face several challenges and they must maintain their momentum and support from the military community.

The concepts and ideas expressed in *Joint Vision 2010* must be embraced by the military community and be used as guidance for development of supporting programs. Decisions must be made by senior leaders that make hard choices on resource allocations, organizational relationships, and lines of authority. Finally, the process is a long-term effort and it must be maintained as a directional beacon for future planning beyond the tenure of current senior leadership. If these challenges are met, then *Joint Vision 2010* can become a reality and its operational concepts realized. One of the key operational concepts is that of Focused Logistics.

Focused Logistics is the concept that enables the American military to deploy rapidly and effectively, with tailored forces delivered to the right place, at the right time. It will allow flexible and agile combat support with visibility over assets throughout the entire logistics system. It will allow smaller stock levels, and reduce costs in maintaining inventories. Most importantly, it will quickly provide combat forces to the theater commander and enable these forces to transition rapidly to full combat effectiveness once in theater. Focused Logistics will require the entire logistics process to be integrated across past traditional seams and rely heavily on the transfer and leveraging of information.

Just as with *Joint Vision 2010*, there is a similar implementation plan for Focused Logistics being coordinated at this time. The *Focused Logistics Action Plan* refines underlying tenets to the concept and sets out a plan for the implementation process.

Focused Logistics makes logistics a full partner with operational commanders and its inclusion into the planning process will enable commanders in the future to realize enhanced agility and effectiveness with a reduced logistics footprint in the theater.

There are many initiatives underway within the Defense community to support the concept of Focused Logistics but it must also meet and overcome some challenges. Its advantages must be fully appreciated and realized by operational planners so it can be effectively leveraged in operations in theater. Each portion of the logistics community must fully understand the concept and their role in supporting it. Finally, allocations of resources must be made judiciously to ensure that future support systems to Focused Logistics are fully integrated and capable of maintaining flexibility and effectiveness in serving the warfighter. Focused Logistics offers enhanced responsiveness to the needs of the theater commander, and an important tool in achieving that capability will be the use of air mobility.

In supporting operations worldwide the most responsive and flexible portion of the Defense Transportation System is the air mobility component. This component is able to respond to crises and provide support anywhere in the world literally within hours. It is a key piece of the initial deployment process and it also enables the rapid distribution of sustainment supplies anywhere in the world. Air mobility is a complex system of personnel, equipment, and supporting infrastructure. It operates in a dynamic environment and the key to its successful support to the warfighter lies in its ability to respond quickly with precision to requirements as they evolve.

Air mobility forces must continue to stress process improvement and joint education with deploying units to ensure a rapid deployment capability. The system needs to continue to integrate information systems and upgrade their capabilities to feed common user systems that allow visibility over supplies and assets in the transportation network. Finally, the air mobility force must install upgrades to its navigation and communications capabilities to allow it the freedom to operate freely in the air traffic control environment of the future and attain real-time command and control capabilities during execution. These challenges must be met if the air mobility component is to achieve the full capability to support the concept of Focused Logistics. It will involve coordination with other components of the transportation network and the logistics system, as well as careful prioritization and allocation of resources in programming for new capabilities.

The future role of the military will call for operations around the globe across the full spectrum of conflict. Forces must be able to move at a moment's notice and be tailored to the mission. Operations will require rapid resupply from a supply source possibly as far away as in the CONUS and forces must arrive in theater ready to rapidly transition to full operational capability. These requirements are not easily achieved. It will take a joint coordinated effort with a long-term commitment to reach this capability. Joint Vision 2010 provides the template, Focused Logistics is a key concept, and air mobility provides a primary tool for making it all possible.

Panel 5: INFORMATION WARFARE
Lt Col Greg White, (USAFA/DFCS), Chair

Maj Mark M. Nickson (ACSC)

--Vulnerability of U.S. and International Financial Markets to an IW Attack

2Lt Valarie A. Weber (USAFA/DFPS)

--IW and Corporate America: What Can the Military Learn? (Tentative)

Lt Col Cathy A. Dreher (NDF, Boston University)

--IW Concept and Its Potential Effect on Intelligence Collection

Maj Sue B. Carter (ACSC)

--Shot to the Space Brain: Vulnerability of C2 for U.S. Space Systems

VULNERABILITY OF US FINANCIAL MARKETS TO AN INFORMATION WARFARE ATTACK

Major Mark M. Nickson
Air Command and Staff College

Abstract

US financial markets have been fundamentally transformed by information technology, and this transformation has exposed a new center of gravity for potential adversaries of the United States to exploit--the computer and communications systems which manage the daily transactions of the financial markets. Information technology has transformed US financial markets by increasing the efficiency of daily transactions; reducing the role of the traditional banker, broker, or other financial intermediaries; and enabling a whole new market in highly complicated derivative securities to thrive. With these changes, potential adversaries to the US have a new list of targets and methods to attack US financial institutions. They can physically attack the markets themselves, use electro-magnetic pulse generation systems to damage the financial computer systems, hire professional hackers to penetrate selected systems, or most importantly, recruit an insider who has access and know-how to sabotage critical nodes. A multi-disciplinary approach to computer and information security can reduce financial market vulnerability. Corporate security managers can institute a program separating software development, system test, and production activities. They can also restrict physical access to critical computer systems and utilize firewalls, cryptographic technologies, and network monitoring software to protect systems from unauthorized outside access. The US government can support this process by encouraging private-sector reporting of computer crimes, establishing an around-the-clock network operations center, and devising policies encouraging private use of strong cryptographic techniques. These findings are a result of an in-depth literature search in Air University's library and a visit to the President's Commission on Critical Infrastructure Protection in Washington, DC.

IW and Corporate America: WHAT CAN THE MILITARY LEARN?

**2LT RICHARD CARVER AND 2LT VALARIE WEBER
HQ USAFA**

Executive Summary

Information warfare holds many new opportunities for the Air Force. However, along with opportunities, information warfare also poses several problems. Topping the list of problems for the Air Force is information protection. Information protection problems also plague corporate America. This paper explores information protection strategies used by corporate America in order to answer the question: are there any aspects of corporate America's information security strategy that can be applied to enhance Air Force defensive information warfare operations?

Last year the Air Force developed the Information Protection Barrier Reef, which is a twelve step technical pathway to network protection. However, there is more to information protection than the technical aspect. The authors find that corporate America holds many ideas on information protection strategy that can benefit the Air Force. The following are four areas the Air Force should consider.

There will always be more options in research and development than money to fund research. The Air Force should actively work towards a more cooperative relationship with corporate America in the area of defensive information warfare. By engaging with corporate America in this realm both sectors will benefit from the other's knowledge and experience. Other benefits, such as technology development, may be derived from a more cooperative relationship. Due to financial constraints, outsourcing defensive information technology will be beneficial.

Using new technology without changing the way the Air Force regards security will not produce enhanced performance. The Air Force must be aware of how organizational culture plays into its efforts at defensive information warfare. This includes both setting an atmosphere that gives information security a high priority as well as rewarding good security efforts.

All people in the Air Force must be retrained to exploit defensive information warfare strategies and technology. This may include reorganization to more efficiently confront the threat. Following the implementation of the first three steps of the Information Protection Barrier Reef the Air Force will need to institute comprehensive training for all personnel. The Air Force will benefit from integrating larger numbers of computer security specialists into the wing organization. The Air Force should also consider creating an Air Force Specialty Code for information operations.

To synthesize the above ideas, the Air Force must gear its people toward the proper strategic goal. The synergistic combination of evaluation, security policies, training, organizational culture and technologies will only be effective if tested constantly and results evaluated and applied. Therefore, Air Force defensive information operations should be comprehensively tested.

Information security is a very real concern felt by both the Air Force and corporate America. Presently, these two sectors are working independently of each other on the issue. However, if the Air Force takes the initiative to create a productive working relationship with corporate America, there is potential for the Air Force to glean several technical and management practices.

AN EXAMINATION OF THE CONCEPT OF INFORMATION WARFARE AND ITS POTENTIAL EFFECT ON INTELLIGENCE COLLECTION

Lt Col Cathy Dreher
National Defense Fellow, Boston University

EXECUTIVE SUMMARY

Military technologies evolve over time and space, often in direct relation to potential adversarial capabilities, either real or perceived. Media reports highlight almost daily the numerous criminal acts involving our information infrastructure, from financial to telecommunications misuse and abuse. The threat of information warfare is very real and as such warrants attention. For every technology the U.S. employs, adversaries work at developing methods to buy, steal, obtain or otherwise observe these technologies. The United States is the largest developer and consumer of computers and telecommunications and as such these new technologies are highly desirable and, therefore, are always at risk.

Intelligence collection and production are heavily reliant on computer and communication systems. Future warfare is likely to be directed at these technologies. Just how vulnerable are they? What DoD policies and programs are in place to counter this threat? What can the Intelligence Community do to posture itself against a hostile Information Warfare threat? What is the potential impact of Information Warfare on the Intelligence Community? The Information Warfare threat warrants examination within the context of intelligence collection as it affects both individuals within the community and the collection process itself. Hostile Information Operations can directly affect individual members working within the Intelligence Community. Information Operations also impact collection platforms and methodologies. Finally, Information Operations significantly effect the entire collection environment.

Information Warfare, if used correctly, can be a significant weapon having both offensive and defensive uses. Intelligence organizations themselves are a highly viable and logical target for hostile Information Operations. We have to dispense with the idea that the United States is invincible. New capabilities and new competitions mean new conflicts in the Information Age. Information Warfare will take on a life of its own and we are probably unable to conceptualize all of its potential targets. The civilian and military communities have to come together, to unite against the Information Warfare threat, if we are to be able to protect our information infrastructure. There is a long-standing difficulty in understanding terminology between the military and civilian communities. This gap must be bridged if we are to work together at identifying, understanding and reducing the Information Warfare threat.

The Intelligence Community will be called upon to be part of the solution—to make predictions of attack, determine intent and capability, select targets, and plan appropriate weapons. It is imperative that the Intelligence Community begin using knowledge gleaned from our role as “victim” as a learning experience: Attacks that we have identified and investigated must be studied. Lessons learned and recommendations can go toward building databases. Human factors need to be evaluated and psychological profiles determined from computer criminals we have apprehended. Vulnerabilities must be identified and evaluated. Then this information can be used to evaluate U.S. vulnerabilities.

Any actions taken now will pay large dividends over the next few years. The paradigm shift which Information Operations will demand deliberate planning and action now by leaders within the Department of Defense and, more specifically, within the Intelligence Community. A sense of teamwork must be fostered within the Intelligence Community, between the other investigative agencies and within the private sector. The time is right within today's government to formalize the structure we need to have a formidable offensive Information Operations capability and a defensive program against a hostile Information Warfare threat.

THE VULNERABILITY OF COMMAND AND CONTROL OF NON-MILITARY SPACE SYSTEMS

Maj Sue B. Carter
Air Command and Staff College

Abstract

The US military is becoming reliant on space systems. These systems provide us the essential information and communication means required to dominate the future battlespace. This reliance has extended beyond military programs, however, and now includes a reliance on commercial and civil systems. While this trend towards non-military systems is inevitable, does reliance on civil and commercial space systems create a unique center of gravity for the US military?

This paper evaluates this issue by first identifying the need to use non-military systems and then developing a theory for analysis of realistic vulnerabilities of space systems. The focal point for this analysis is the command and control segment for a particular program. Four specific civil and commercial systems (Landsat, SPOT, Radarsat, and Intelsat) are evaluated in light of this analysis. What results is an identification of system reliability based on the program drivers for a specific space system. The bottom line is that commercial and civil systems are more likely to solve vulnerability problems rather than create them.

Panel 6: REGIONAL SECURITY (Asia)

Dr William E. Berry, Jr. (University of Colorado, Colorado Springs), Chair

CAPT Derek F. Offer, USN and Col (S) Peter J. Bunce (NDF, Harvard)

--Iran: Is Dual Containment Working?

Maj David J. Johnston, (JMIC)

--The Threat to U.S. Forces Associated with a Reunified Korea in 2012

Professor Joan Johnson-Freese (AWC)

--The Chinese Space Program: A Mystery Within a Maze

--Implications of Ending Sanctions Against Iraq for Persian Gulf Security

IRAN: IS DUAL CONTAINMENT WORKING

CAPT Derek F. Offer, USN and Col (S) Peter J. Bunce
National Defense Fellows, Harvard University

ABSTRACT

Dual Containment is a complex policy by which the United States attempts to simultaneously deal with two hostile nations that are themselves bitter enemies. To analyze the impact of this policy on Iran, one must first unlock its interwoven objectives and consider them in concert with congressional legislation aimed at influencing Iranian behavior. Reality judgments made about the true nature of Iranian behavior that the U.S. deems unacceptable must be based on fact rather than rhetoric. An appreciation must also be had for the perspectives of Arab Gulf states that are most directly effected by Dual Containment. When U.S. policy toward Iran is differentiated into successes and failures it becomes clear that at best Dual Containment is a holding action. What is needed today is a long term vision toward dealing with the Islamic Republic, a "competitive strategy" that can both entice and coerce Iran into assuming a responsible role in the community of nations.

THE THREAT TO U.S. FORCES ASSOCIATED WITH A REUNIFIED KOREA IN 2012

Maj David J. Johnston
Joint Military Intelligence College

EXECUTIVE SUMMARY

If the demilitarized zone (DMZ) across the Korean peninsula stopped being the most heavily defended border in the world before the year 2000, what will Northeast Asia be like in fifteen years, and what threats would there be to the national interests of the United States? This question, and the answers presented below, stem from the widely held (although not universal) belief that the North Korean government will not be able to sustain itself indefinitely, due to overall economic inefficiency and the disastrous three-year cycle of extremely heavy flooding and drought.

"On December 11th [1996], the outgoing director of America's Central Intelligence Agency, John Deutch, told the Senate intelligence committee that within the next two or three years, North Korea will either make war, make peace, or implode. Not even he... was prepared to lay a bet on which it will be." In May 1997, the Pentagon published its Quadrennial Defense Review (QDR) of the 1993 Bottom Up Review of national military structure and policy -- in which planners indicate that resolution of Korean peninsula tension would probably lead to a reduction, but not the removal, of U.S. forward deployed forces in Northeast Asia. President Clinton and senior military leaders have issued numerous statements committing the United States to a continued presence in the western Pacific well into the next century.

Although there are innumerable scenarios for resolving the peninsula stalemate, but based on current intent and capabilities of the two Koreas, they all tend to fit into one of four general categories: implosion, confederation, separate trading partners, or war.

This study provides a solid analytical base for future planners in developing U.S. military policy by thoroughly examining the threats to U.S. vital interests in Northeast Asia under the policy of continued presence.

The Pentagon considers Northeast Asia the site of one of two (the Middle East is the other) potential "theater wars". The Northeast Asia region embodies the two Koreas, China, Russia, Japan, and because of defense treaty alliances with Japan and South Korea -- the United States.

Yet, the paradox of Korea is that without the immediate threat of a massive North Korean army poised just miles from Seoul, the peninsula itself has little military strategic value. Demilitarizing the DMZ will change the entire balance of power in the Pacific. Like the fall of the Berlin Wall, releasing the stress pent up along the stalemated DMZ will loose a series of military, economic, and political permutations that will ripple far from the peninsula. Reunification would effect international economics, the Taiwan question, territorial disputes, cultural animosities, exaggerated nationalism, and resurgent religious fervor. New regional alliances are forming, and old ones reviewed as China extends its economic influence in Indonesia, Japan, and even to the shores of the United States. The economic ministers of the Alliance of Southeast Asian Nations (ASEAN), a remnant of a Cold War attempt to form a non-aligned bloc, are experiencing more influence than ever before. Nearly every Pacific rim country is currently embarked on military hardware upgrades. Yet the removal of the military threat along the DMZ by the year 2000, could be the most determining catalyst for the 21st century.

THE CHINESE SPACE PROGRAM: A MYSTERY WITHIN A MAZE

Dr. Joan Johnson-Freese
Air War College

EXECUTIVE SUMMARY

The Chinese Space Program: A Mystery Within a Maze is the first attempt at an unclassified, comprehensive analysis of Chinese efforts in space. It not only describes the activities the Chinese are engaged in, but does so within the context of Chinese political, economical and cultural parameters critical to realistic and pragmatic policy analysis. Projections are then offered from the information provided concerning where China might be going in the future and equally important, what policy actions the United States might take to avoid a confrontational stance with China and encourage Beijing to build a more stable, cooperative regime.

Panel 7: REGIONAL SECURITY (Russia)
Col (S) Paul Selva (OSD/NA), Chair

Dr Jacob W. Kipp (FMSO)

--Alternative Russian Futures and Their Implications for U.S. National Security

Lt Col Brenda J. Vallance (USAFA/DFPS)

--Russian Military Security Issues and the Implications for U.S. Policy

Professor Roman Laba (NPS)

--The Russian Cossacks: A Four Million Man Military Force and the Russian State Today

ALTERNATIVE RUSSIAN FUTURES AND THEIR IMPLICATIONS FOR U.S. NATIONAL SECURITY

Dr. Jacob W. Kipp

Foreign Military Studies Office, Ft. Leavenworth, KS

Executive Summary

This paper examines the alternative national security concepts of various potential movements/leaders for Russia in the twenty-first century. These include those of the three main factions of President Yeltsin's current government: Prime Minister Viktor Chernomyrdin and that of his Party, "Our Home Is Russia" -- also known as the "old bears;" the young reformers associated with Deputy Prime Minister and Minister of Finance, Anatoliy Chubais, and Deputy Prime Minister Boris Nemtsov and linked to the Party "Democratic Choice;" and those associated with Deputy Prime Minister and Minister of Internal Affairs, Anatoliy Kulikov, associated with the "party of internal order." It will also address the views of: Georgiy Yavlinsky's Yabloko Party, Gennadiy Zyuganov's Communist Party of the Russian Federation, the national-populist movement led by the former Secretary of the Security Council, General Aleksandr Lebed, the nationalist/imperial opposition, including the Liberal Democratic Party of Russia, led by Vladimir Zhirinovskiy, and Colonel-General Lev Rokhlin's All-Russia Movement of Support for the Army, Defense Industry and Military Science.

While the presidential election of 1996 was a personal triumph for the President Yeltsin and resounding popular victory over a return to Communism, it did not resolve the issue of Russia's future path and the question of its national security policy. In the year since President Yeltsin's re-election and immediate incapacitation because of heart problems it has become more and more evident that there are profound policy disagreements and associated political jockeying within the Yeltsin administration that has led to frequent shifts among the senior executive leadership. The appointments of General Aleksandr Lebed, Russian Army (retired) to the post of Secretary of the President's Security Council and General Igor Rodionov to the post of Minister of Defense, and subsequent sensational removals of both men in October 1996 and May 1997 were only one indication of this instability. In the past fourteen months Russia has had three ministers of defense and three chiefs of the General Staff. The rapid turnover in the defense sector has reflected both the crisis within the Russian armed forces and the government's inability to find an institutional-political arrangement to execute a radical program of downsizing and reform. The current debates over military reform and NATO enlargements have served to place the alternative futures in the areas of domestic, foreign, and security policy into sharp contrast.

The three chapters devoted to the parties within the government demonstrate a broad consensus that the primary threat to Russian security is internal. But the factions have defined this threat in radically different ways: radical reform and further shocks; stagnation and collapse of reform, and internal disorder brought on by ethno-nationalism, corruption and organized crime. The external dimensions of each party's vision of Russia's future encompasses foreign and national security agendas that would define Russia's relationship with the United States and the West. The reformist faction, "young wolves," within the government wants Russia to join the ranks of the leading capitalist powers and has shaped its foreign and security policies to achieve this goal. The moderate-conservative faction, "old bears," has the more limited goal of establishing Russia's credibility as a "normal" great power and would seek to exploit opportunities in a multi-polar world to enhance Russian influence in the CIS and the periphery of the Russian Federation. Those concerned with internal order emphasize the linkages between the sources of instability within Russia and external powers and movements. They are the champions of the multiple militaries that Boris Yeltsin has favored since 1993. Moreover, they enjoy a special relationship with the national-communist and nationalist-imperial oppositions.

The five chapters devoted to the opposition parties and movements address their domestic, foreign and security programs. The opposition divides into those seeking to preserve and strengthen Russia's experiment with democracy, an open society, and a market economy and those interested in a repudiation of the experiment. The liberal opposition, Yabloko, sees Russia's future as bound up with integration into the global economy and,

precisely because of the government's inability to manage domestic and foreign affairs, favor constitutional changes that would create effective checks and balances on executive authority to prevent further abuses of power. The nationalist-populist opposition, led by General Lebed, favors an authoritarian program to end the disorder in the state and to protect society from the bureaucratic corruption and organized crime. On foreign and security matters the nationalist-populists favor a prudent policy in keeping with Russia's limited resources. They are fundamentally concerned about military reform but have put their criticisms in terms of debate over specific issues and the feasibility of the government's announced program. The national-communist opposition, Communist Party of the Russian Federation, is committed to a break with the current Russian experiment, support the restoration of the Union, and are ideologically opposed to the United States and the West. Russia has to act as a check on US hegemony. They are opposed to the continued existence of NATO and not just its enlargement. They see the source of this conflict in the geopolitics of Eurasianism. The nationalist-imperial opposition, the Liberal-Democratic Party of Russia, also wants to undo the current experiment but is more disposed towards a national-socialist economic alternative. They see the key to achieving their goals to be the capture of executive power for their leader. Their chief foreign policy goal is the restoration of the Russian Empire. Their foreign and security policies embrace the use of force to achieve national objectives and they emphasize the re-nationalization of European security as a means to counter US influence and broaden Russia's field of action. They supported the government's war in Chechnya and focus upon the south as an area for a forward Russian policy. The military - defense industrial faction, the Movement in Support of the Army, Defense Industry, and Military Science, combine telling criticisms of the government's program for military reform with accusation of betrayal by those proposing such reforms, who are labeled Western "agents of influence" working to wreck the military and ensure the collapse of the Russian state and society. Their program would involve the unconstitutional removal of President Yeltsin, new elections, and an interim government that would put into action a program of dismantling the current experiment. There are, therefore, well-defined splits in the opposition over domestic, foreign and security policy. Those opposing the current experiment, the government's program of military reform and the West's influence in Russia represent powerful blocks in the State Duma.

Under these circumstances it seems prudent for the United States to continue seeking a special arrangement that will keep Russia within the fold of democratic states, while recognizing the severe costs that social disorder, corruption, and crime are imposing upon Russia. Thus, the arrangement struck at Paris over Russia's special relationship with NATO can serve to strengthen the vision of a great power, linked to the West. It would be imprudent to ignore the ideological programs of those elements of the opposition who are anti-Western in orientation and seek conflict with the US. NATO enlargement is insurance against the triumph of such a position.

OLD THINKING AND RUSSIAN MILITARY REFORM: THE PROBLEM OF CHANGING INSTITUTIONAL IDENTITY

LT Col Brenda J. Vallance
USAFA Department of Political Science

ABSTRACT

This paper examines old thinking, also called neotraditionalism, in the Russian military. This style of thinking has persisted since the Soviet era and is characterized by personalistic practices, quantitative rather than qualitative measurements of success, and secrecy. The result of old thinking is that the Russian military has been unable to define a new identity as a military in a post-socialist system. In contrast, the other Russian power ministries have quickly identified new roles and missions, thereby raising their prestige and capabilities while the military forces have decayed slowly. With the lack of a clearly defined identity and external threat, and with the power ministries' missions focused on internal issues, the possibility exists that these organizations could represent a threat to their own population.

The need to develop a new military identity is a problem for Russian military and civilian leaders, and there is little that U.S. policy can do to address this situation. However, U.S. leaders should above all recognize the situation and the potential danger inherent in it. In our contacts and exchanges with Russian leaders, we should stress that civil-military relations are a constant source of concern in our own country. We should also widen our definition of "military forces" in order to recognize the role of troops belonging to the other Russian power ministries and involve them in our exchanges and contact programs. Finally, U.S. analysts of the Russian military must broaden their definition of national security to include the role now being played by the power ministries.

The Russian Cossacks: 1997

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Executive Summary

At the beginning of 1997, the situation with the Cossacks was the following:

- Since 1990 the Cossacks had emerged as the largest social movement in Russia.
- They were split into numerous national, regional and local associations.
- They were found everywhere but were concentrated on Russia's southern borders, where their historic pre World War I Cossack army provinces had been located.
- Demographically, the majority are in South Russia - Rostov-Stavropol and Krasnodarmodar provinces - on Russia's North Caucasus frontier, but their organizations stretch from the Moldova to the Pacific.
- They are a trans-state phenomena with branches all over the CIS and in the Baltics.
- They are emerging as the leaders of the Russian diaspora in such places as Moldova and Northern Kazakstan.
- They have played an independent role in Russian foreign policy sending armed volunteers to fight in Moldova, Abkhazia and Bosnia.
- They are a nativist movement engaging in vigilante actions against minorities .

- The Cossacks claims to restoration of provinces and privileges are based on their claim to be an ethnic group. This threatens interethnic relations and the entire federal system in Russia.
- They have a potential to be a separatist movement.
- They are in close contact with Russia's extremist parties and elements of the police and army.
- They were an important local cause of the Chechen War.
- There is an ethnic Cossack lobby at the highest levels of the Russian government.

By 1997, the Russian government knew that an armed mass movement of several million Cossacks could not be allowed to remain with the anomalous status of a civic association as if they were clubs of stamp collectors. In 1997, the Russian government at three levels, the President, the Parliament and a Province, Krasnodar, attempted to resolve the Cossack question. This report is about the failure of all three attempts and the current impasse in policy.

In summary:

President Yeltsin attempted to put the Cossacks into state security service where they would have become part of a burgeoning and little-noticed praetorian palace guard under his personal command. Yeltsin offered the Cossacks too little and most refused to

enter his service. The failure of his policy in spite of pressure and threats may split the movement and create more radicalized factions hostile to Moscow and the President.

From March to June, the Parliament voted three times on a law which would supersede Yeltsin's decrees and plans. The Parliamentary law which is analyzed below went far in creating a semi autonomous and centralized Cossack security force linked to the anti Yeltsin opposition. This law failed in the higher house - the Federation Council. It may come back.

Finally a bastion of the Red belt, Krasnodar Province attempted to set up its own Cossack army. In August, Yeltsin signed a decree abrogating the province's decrees but did not dare to suppress the Kuban Cossacks the largest most united Cossack force (officially 330,000 members). This was a remarkable episode in the battle against Moscow by a Russian region. It has disintegrative implications for Russian security.

Finally, the report deals with a dimension independent of these elite efforts to resolve the Cossack question. At a local level, Police, Border Guards and military are entering into agreements with Cossack units and communities. Regional security units are desperate for food and salaries and personnel and, in return, promise local service for recruits. What is occurring is a localization of the Russian security forces. Local boys serve in local security units. Who will these formations obey if a crisis breaks out between Moscow and the provinces. The Cossack provinces, in particular Krasnodar, are the leading edge of this development.

Panel 8: REGIONAL SECURITY (Africa)
Maj Deborah A. Shackleton (USAF/DFH), Chair

Stephanie D. Brenninkmeyer (JMIC)

--Options for Conflict Resolution in Sub-Saharan Africa

COL Dan Henk, USA (Army WC)

--Improving the Conduct of Military Operations Other Than War in Africa

LTC Karl E. Prinslow, USA (FMSO)

--Future Security Assistance Policy and Programs for Africa

Towards an African Crisis Response Capability

Stephanie Davis Brenninkmeyer
Joint Military Intelligence College

EXECUTIVE SUMMARY

Ideally, the United Nations, as the impartial worldwide organization, should be responsible for global resolution across the spectrum of conflict. In reality, however, the UN currently has neither the capability nor the resources to do so. Therefore, the question of who to send when a crisis occurs is at the heart of discussions from the UN down to regional organizations and nation states.

To better prepare itself for the future of peacekeeping, the UN has reorganized its peacekeeping arm to better suit current budget constraints and the increased number of crises. For example, the UN's Department of Peacekeeping Operations (UNDPKO) created the UN Stand-by Arrangements System (UNSAS) to enable mission planners to tailor a force to suit a particular crisis' needs. Organizing previously pledged units, equipment and rapid reaction capabilities prior to a crisis insures that the UN will never be caught again without a potential force to deploy.

The UN has also begun to emphasize the capabilities of regional organizations encouraging them to play a more robust role in conflict prevention and resolution. The idea that regional institutions should take on responsibilities for peace, security and humanitarian issues is gaining greater acceptance. However, within Africa, despite good intentions, there is still an absence of an effective indigenous capability, leaving African countries unable to participate in large-scale peacekeeping efforts.

African's lack of peacekeeping capability has led to the most recent initiative in African conflict resolution – a U.S. brokered, UN sanctioned, African Crisis Response Initiative (ACRI). The ACRI, a direct result of both the UN reorganization and enhanced African regionalization, is an effort to bring U.S. resources to African militaries in order to enhance African peacekeeping capabilities. Increased African capability will allow Africans to become more involved in crises in Africa and around the world. The ACRI will work closely with other international partners to ensure peacekeeping training in Africa is standardized and donor nation equipment is compatible, thus enhancing African countries' peacekeeping capabilities. African militaries will then be able to support peacekeeping or humanitarian missions as part of a regionally sanctioned multi-national force or UN-led contingent. By increasing African capacity to perform peacekeeping and humanitarian missions, the Security Council and regional organizations will have more options for conflict management.

This study, based on interviews and research of past and current peacekeeping operations, assesses new approaches to peacekeeping, specifically the UN Stand-by Arrangement System, enhanced regional peacekeeping capacities, and programs like the African Crisis Response Initiative. Through this assessment, a method of evaluation is developed. An examination of current and future options for African conflict resolution will help military planners, policy makers, and intelligence analysts to better prepare for future African conflicts.

UNCHARTED PATHS, UNCERTAIN VISION

U.S. Military Involvements in Africa in the Wake of the Cold War

COL Dan Henk, USA
U.S. Army War College

EXECUTIVE SUMMARY

Thesis. The United States has conducted a wide variety of military involvements in Sub-Saharan Africa over the past decade. While humanitarian relief and peace operations have generated the most publicity, other more routine military relationships and activities are of far greater long-term significance. These generally have been effective in securing U.S. regional interests. However, a number of structural and substantive adjustments could significantly enhance their value.

Discussion.

Although Americans disagree among themselves on the issue, the U.S. does have interests in Africa which it pursues with public-sector resources. These interests include regional stability, access, information and warning, safety of American citizens, safety from weapons of mass destruction, comity and cooperation, safety from transnational threats (such as disease, terrorism, narcotics and organized crime), regional freedom from egregious suffering, humane/competent/accountable regional governance and an unthreatened natural environment.

In Africa, the United States has employed its military establishment in pursuit of some of its regional interests. Of seventeen distinct categories of "operations other than war," the U.S. military has been significantly involved in at least five in Africa. These include nation assistance, humanitarian relief, noncombatant evacuation operations, peace operations and special missions.

According to U.S. diplomats, U.S. military personnel and African officials, America conducts the right kind of military activities in Africa to secure its interests. However, these activities do not always articulate well with each other or with the other instruments (e.g. economic, diplomatic, informational) of U.S. regional policy. They also could be significantly more effective with some adjustment in approach, content and resourcing.

Taken as a whole, U.S. policy in Africa tends to be reactive rather than proactive. It tends to be driven by events rather than to shape events. This severely undermines its ability to protect the nation's regional interests. Unwillingness to attenuate regional problems in their early stages leads to expensive crisis interventions. More effective use of military involvements would involve greater effort to shape the regional security environment.

Recommendations.

In order to improve the value of its regional military involvements, the United States should implement the following measures:

- Develop a coherent "National Security Strategy for Africa" which clearly identifies U.S. regional interests and provides a realistic ends/ways/means projection of how the nation intends to pursue those interests with all instruments of national power.
- Develop a coherent, consistent "National Military Strategy for Africa" which clearly demonstrates how the nation will employ the military instrument of national power in pursuit of its regional interests.
- Create a unified command (or "sub" unified command) with sole responsibility for Africa and its surrounding islands.

- Dramatically increase the extent and regularity of consultation on security issues with regional leaders and with allies concerned about African security issues.
- Make significant modifications in nation assistance programs for the region to more coherently and consistently target the various programs against appropriate regional interests. Dramatically broaden educational exchanges between US and regional military schools, increase the availability of US staff and war college opportunity for African officers, and emphasize multinational joint exercising with African countries.
- Display much greater sensitivity to, and support for, indigenous regional conflict resolution initiatives.
- Develop mechanisms for objectively measuring the value (to U.S. regional interests) of specific nation assistance programs.
- Increase the pool of U.S. military regional experts (on the model of the US Army FAO program), require that expertise for assignment to military positions in Africa and to staff assignments dealing substantively with planning for US involvements in Africa.

FUTURE SECURITY ASSISTANCE POLICY AND PROGRAMS FOR AFRICA

LTC Karl E. Prinslow, USA
Foreign Military Studies Office, Ft. Leavenworth, KS

EXECUTIVE SUMMARY

The traditional Security Assistance programs of Foreign Military Financing Program (FMFP) and Military Assistance Program (MAP), loans and grants of funds for the purchase of military equipment and training, were a unilateral dispersion of funds to foreign nations, strictly military aid. Actions by the United States and the reduction of these funds has caused some countries' militaries and governments to question the reliability and credibility of the US and in so doing damaged some positive relationships with potential coalition partners. The problem of improved military relations in the absence of direct military aid is one of credibility, dependency, cross cultural communication and compounded by a lack of efficient interagency cooperation.

The solution is expanded combined training exercises and training based activities funded from Operations and Maintenance budgets. The U.S. must now seek a new relationship with foreign militaries. This is currently sought and embodied in 'engagement'. Instead of the U.S. providing funds for the support of Foreign Military Sales (FMS) purchased equipment, creating a perception if not real reliance or even dependence on U.S. largesse, the new relationship must be based on mutual respect and cooperation as equal partners in mutually beneficial activities - *military cooperation activities*. The new term "military cooperation activities" is proposed to better characterize engagement activities with African militaries.

This paper identifies the U.S. foreign policy goals and interests towards Africa, the manner in which U.S. military activities support those interests and the respective value to the improvement of military-to-military relations. It also proposes specific new ideas for further engagement with African militaries.

For the foreseeable future the following assumptions will remain true regarding U.S. Department of Defense activities in Africa:

- The military will remain important to the execution of U.S. foreign policy.
- There will be no more direct military aid for Africa.
- The administration will continue to seek coalitions, regional organizations and burden sharing in lieu of unilateral U.S. commitment.
- The U.S. military will remain "engaged" in Africa.

Acknowledging that the military is not the sole foreign policy instrument, it does however, support U.S. interests of free trade, market access, support for democracy, stable government transitions, smaller and more professional militaries under civilian control and counter transnational issues and humanitarian interests. The U.S. military supports these interests via its training exercises and contingency operations. The most significant and influential programs such as IMET, JCET, JCS Exercises, and humanitarian assistance related activities are described and their benefits identified.

New methods to cooperate with African militaries must enhance training value at a minimal cost, preferably within the constraints of the current Operations and Maintenance budget. An example of this is the use of computer simulation based training of command and control and staff functions as well as multinational interoperability.

Improved synergy of present programs within the Department of Defense and in the interagency arena must take place in order to get the most out of them for effective military to military relations. This

challenges military commanders and planners to be more creative and innovative and imaginative in their training plans. Some of this advocated innovation is underway so this author is an advocate of these efforts rather than proposing a new methodology. For other units this paper proposes a new training mechanism.

The absence of a comprehensive and consistently followed strategy for U.S. military activities and interests in Africa does not contribute to improved relations except in those countries which are recipients of the ad hoc application of military cooperation activities. The African Crisis Response Initiative provides a focus and direction to training exercises with African militaries that is currently missing in U.S. military strategy in Africa.

This research is based on the author's personal experience, first person interviews with American officials that administer, execute or supervise military cooperation activities overseas. A questionnaire was used in order to reach officials that could not be personally met and gain written answers. The questionnaire and responses are provided. Military and civilian officials of five African nations were interviewed as well as African officers attending the US Army Command and General Staff College.

Panel 9: REGIONAL SECURITY (NATO)
Mr. Oleg Ivanov (INSS), Chair

Maj Marybeth Ulrich (USAFA/DFPS)

--Russia, It's Neighbors and an Expanding NATO

Professor Robin H. Dorff (Army WC)

--A New and Larger NATO: A Vehicle for Promoting U.S. Arms Control and Nonproliferation Objectives

Lt Col Peter H. Liotta (Naval WC)

--No Man's Land: Five Oxymorons from Balkan Deconstruction

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Developments in the Implementation of NATO Enlargement: An Analysis and Follow-up of the Recommendations of the Task Force, *Russia, Its Neighbors and an Enlarging NATO*

Major Marybeth P. Ulrich
USAF Department of Political Science

EXECUTIVE SUMMARY

In November of 1996 I was invited to participate in a Council on Foreign Relations task force to study the issue of pursuing NATO enlargement without irreparably harming our relationship with Russia. This paper presents an overview of the task force's key findings, provides insight into the debate that occurred during the consensus building process, outlines the development of the issue since the issuance of the task force report in July 1997, and addresses some of the challenges that lie ahead as the United States leads a post-cold war European security program focused on the twin goals of enlarging the democratic zone in Europe through NATO enlargement and playing a facilitating role in the consolidation of democracy in Russia.

The task force reached a consensus on recommendations related to how NATO should enlarge, NATO's adaptation to the European security landscape, engaging Russia, the role of CFE and nuclear arms control agreements in this process, and, finally, the unique positions of the Baltic states and Ukraine in their relationships with NATO and Russia. The task force's recommendation to invite new members at the Madrid Summit in July 1997 was issued with the conditions that no new allies should be "second-class citizens," that the door to other prospective partners should remain open, and that neither combat troops nor nuclear weapons should extend to the territories of the new allies. The task force also believed that such an enlargement need not be perceived as an attempt to threaten, isolate, or weaken Russia and that Russian interests could be considered within a Russian-NATO Charter which would establish the framework for Russia's relationship with NATO. The task force also recommended that NATO reject Russia's attempts to exercise a veto over the membership aspirations of the Baltic states and Ukraine and that a separate NATO-Ukraine agreement be negotiated in order to clarify the relationship between the alliance and Ukraine.

The paper also outlines some of the counter-arguments which appeared during the consensus building process and highlights the dissension which exists among Administration officials, academics, journalists, and military policymakers over these issues. Debate over such issues as the changed defensive character of the alliance in the light of ever-expanding membership, whether or not multiple tranches of enlargement should occur, the role of NATO as an instrument of European integration, and the terms of the NATO-Russia Charter are discussed. Finally, the paper explores developments since the task force issued its report in June. The final terms of the NATO-Russian Charter and the NATO-Ukraine Charter, the events of the Madrid Summit, and the prospects for treaty ratification in the U.S. Senate are also explored.

"A New and Larger NATO: A Vehicle for Promoting US Arms Control and Non-Proliferation Objectives?"

Dr. Robert H. Dorff
U.S. Army War College

EXECUTIVE SUMMARY

This paper explores the extent to which an enlarged NATO can contribute to U.S. arms control and non-proliferation objectives. The significance of this question stems from two different but related issues. First, in the face of the decision to go forward with NATO enlargement there is a growing need for policy makers to articulate a set of strategic rationale for adding new members. The argument that enlargement contributes to trans-Atlantic security and US interests by promoting arms control and non-proliferation objectives is certainly one possible justification. Second, arms control and non-proliferation are frequently viewed in isolation from other component parts of US national security strategy. This isolation has at times led to serious misunderstandings about the nature and objectives of arms control and non-proliferation processes, and to a lack of effective coordination of the various tools and instruments of national security policy. By outlining and then pursuing a strong arms control and non-proliferation agenda within the framework of NATO enlargement, US policy makers could accomplish two things: Provide a clear rationale for enlargement, and place arms control and non-proliferation objectives in a firmer strategic context. This paper asks whether such an approach is currently being used, and if not, whether it would make sense to do so.

The analysis begins with a brief review of the history of arms control and non-proliferation in NATO, concluding that neither one has ever been central to NATO policy. Other than the fact that the US nuclear guarantee reduced incentives for NATO members to develop independent nuclear capabilities, the Alliance has rarely played a significant role in promoting non-proliferation. The history of NATO and arms control is even less substantial, with the Alliance having frequently played more of a role as arms proliferator rather than arms controller. And despite the existence of an arms control section within the International Military Staff of NATO, arms control has consistently been at the periphery of NATO concerns.

Conclusions

The paper concludes that little has changed in this relationship even after the profound transformation of the international security environment. Hardly any attention has been given to linking NATO enlargement to arms control and non-proliferation objectives. The primary focus relating the two has been to ensure that arms control agreements remain "enlargement friendly." The continued organizational "stove-piping" maintains a virtual separation between on-going arms control processes such as CFE and Alliance planning and policy. Very little effective coordination can be accomplished in such an environment. In effect, then, relatively little linkage exists between arms control/non-proliferation objectives and NATO enlargement at either the strategic or symbolic levels.

Recommendations

Arms control especially must be seen as an additional and complementary way of achieving strategic objectives. Used properly and coordinated effectively with other instruments and concepts, it can support the use of military alliances such as NATO in pursuit of those objectives.

Better efforts to coordinate Alliance policies and decisions with arms control processes are essential in any case to avoid outright conflicts between the two. This can easily occur, for example, as a result of the newly negotiated national limits in CFE rendering future enlargement impossible or highly controversial, or even in making existing NATO contingency plans or exercises impossible to execute without breaching the CFE agreements.

At a minimum the US should move immediately to improve communications between its CFE and NATO delegations. A more effective organizational approach should be explored.

Adapt the relationship between arms control/non-proliferation and NATO to reflect post-Cold War realities. Excluding an active arms control dimension from NATO may have been appropriate for a collective defense alliance focused on deterring and, if necessary, fighting and defeating the Soviets. It is much less appropriate for a NATO that is enlarging and evolving into a broader security organization with a collective security orientation.

The US should publicly promote NATO enlargement as a vehicle for enhancing arms control and non-proliferation objectives. This should be part of the strategic rationale for adding new members, as well as part of the symbolic justification presented to the public.

Current NATO members, with strong US leadership, should move quickly to dispel any misconception that potential new members might have that joining NATO is an invitation to a weapons bazaar. NATO needs to have robust capabilities, and new members must contribute to them. But NATO should not be simply a vehicle for accelerated arms proliferation in Central and Eastern Europe.

THE WRECKAGE RECONSIDERED: FIVE OXYMORONS FROM THE BALKAN DECONSTRUCTION

Lt Col P. H. Liotta
Naval War College

EXECUTIVE SUMMARY

The current power predominance of the NATO Stabilization Force (S-FOR) and the lack of significant progress made since the Dayton Accords, coupled with the pressures of the potential June 1998 withdrawal from Bosnia, highlight several policy issues:

- Full implementation of the Dayton Accords is at risk--either prior to June 1998 or at any foreseeable time in the future
- Apart from the political symbolism of democratic elections, the very real problems of refugees, partitioned states, and the prosecution of war criminals are both prolonging instability and suggest ultimately negative outcomes for long-term regional stability. The Dayton Accords were not an end state; the absence of further brokered negotiations and agreements that move beyond the Dayton Accords will insure regional instability after military force withdrawal. A new Dayton-type initiative is a likely imperative.
- The creation of a Bosnian protectorate may well become the only practical option for stability. Such a protectorate must be safeguarded by a military force capable of implementing freedom of movement and the return of refugees. Over the long term, the United States will have to lead this effort if Dayton is to be preserved, even if such a "protectorate" may not meet the expectations of both the American people and Congress.
- The United States has no vital interests in the Balkans. That said, American diplomatic and military action in the former Yugoslavia ended war in Bosnia, led to the signing of the Paris peace agreement on 14 December 1995, and created the conditions for regional peace. Absent our action, there would have been more deaths, more refugees, and more potential for the conflict to expand. Moreover, a wider conflict would have drawn Albania, Bulgaria, Hungary, and Romania, as well as NATO partners Greece and Turkey, deep into its vortex.
- Even prior to force withdrawals from Bosnia-Herzegovina, the only viable solution now appears to require the prolonged investment of significant resources and personnel at significant risk without a meaningful chance of success. Thus, the Cyprus paradigm of partitioned states monitored by military personnel seems more appropriate to Bosnia than the paradigms of Vietnam or Somalia.

The attached study, "The Wreckage Reconsidered," examines these conflicting tensions and their implication for European security through the use of forces or issues so contrary in nature they may remain problematic no matter what approach or resolution might be offered. Indeed, these oxymorons reflect the very dilemma facing our policymakers today as they deliberate the future of our policy in the region. The five oxymorons are:

- U.S. strategic perspectives as they have applied to the Balkan example.
- The rise of the "parastate."
- A strategy of chaos.
- Religion as a cultural and political force in the Balkans.
- How NATO enlargement may bring unintended consequences.

In using the components of the dilemma as analytic criteria, this work challenges numerous assumptions made and conclusions drawn about the death of Yugoslavia.

Panel 10: ENVIRONMENTAL SECURITY

Mr. Robert Jarrett (AEPI), Chair

Capt Ed Oshiba (AFIT)

--DOD Hazardous Waste Site Remediation Issues in Korea

COL F. M. Lorenz, USMC (ICAF)

--Security Implications of Regional Water Shortage in the Tigris-Euphrates Basin

Dr Charles Krupnick (USAFA/34th EDG)

--Submarine Nuclear Reactors in Russia's Northern Fleet: Environmental Concerns

Capt Paul J. Valley (USAFA/DFB)

--Environmental Security in the Czech Republic: Concerns and the Potential for Conflict

DOD HAZARDOUS WASTE SITE REMEDIATION ISSUES IN KOREA

Capt Ed Oshiba
Air Force Institute of Technology

Abstract

The purpose of this research is to provide information to DoD decision makers to help them formulate hazardous waste site remediation policy for South Korea. Specifically, this study addressed the following areas which influence hazardous waste site remediation policy in Korea: (1) U.S. laws and DoD policies; (2) U.S./ROK international agreements; (3) current and projected South Korean laws and policies; (4) fundamental objectives of DoD environmental policy makers; (5) extent of soil and ground water contamination on DoD military installations in South Korea and its effect on peacetime military operations, occupational safety and health, and warfighting capabilities; (6) remediation precedents set at U.S. installations in other nations; (7) availability of resources and technical capabilities (both U.S. and South Korean) to conduct remedial action and; (8) opportunities for enhancing cooperation between the U.S. and South Korea through transfer of remediation technologies and expertise.

Data from literature review (academic journals, law, policy, and available studies), personal interviews, and field observations were compared using within-method and between-method triangulation. The triangulation methodology validates overall research conclusions by comparing the findings from each research method and from each organizational group (South Korea, DoD, USFK, and installation-level) to determine a level of convergence. Convergent findings were reported as such. Divergent conclusions were not ignored, but further explored in order to reconcile differences and advance the level of understanding regarding the divergent issue.

This research resulted in identification of six factors which have an impact on promulgation and implementation of a DoD hazardous waste site remediation policy for South Korea: (1) current DoD overseas remediation policy; (2) degree of Congressional support/funding for remedial actions in Korea; (3) cleanup precedents set in other foreign countries; (4) the Korean public's perception of DoD with regard to environmental stewardship; (5) Korean environmental awareness, measured by the development and enforcement of Korean environmental law, and, (6) the effect of hazardous waste sites on current health and safety, and on wartime capabilities. In addition, the research highlighted opportunities for U.S./ROK cooperation in the areas of environmental training, advanced education, and remediation technology-sharing.

A few of the more important convergent findings from the research follow:

1. Suspected and confirmed hazardous waste sites, contaminated primarily with petroleum, oils and lubricants (POL), organic solvents, and heavy metals, existed at numerous locations at DoD installations throughout the peninsula.

2. Drinking water wells at several main operating bases (MOBs) and collocated operating bases are contaminated with POL and organic solvents. Although most of the MOBs obtain drinking water from commercial sources, these wells serve as contingency sources of water should the primary commercial sources become contaminated or services interrupted. In the event of war, where interruption of commercial service would be anticipated, this could have significant impact on warfighting capability.

3. The past decade has witnessed explosive growth in ROK environmental legislation and funding. 23 of the nation's 24 major environmental acts were passed since 1990, and the number of compliance inspections and compensation for environmental damage has concurrently risen. This trend is likely to continue.

4. The ROK Ministry of Environment's (MOE's) request for joint assessment of DoD installations, submitted in September 1993, may be interpreted as a request for data on contaminated sites, and in accordance with DoD's newly promulgated remediation policy, DODI 4715.8, free exchange of information on hazardous waste sites

between the DoD and host nation governments is encouraged. This may open up the doors of U.S. installations to MOE inspectors.

5. In the past, the lack of interest in environmental issues and remediation displayed by DoD's Korean counterpart, the Ministry of National Defense (MND), served as a strong argument against conducting remedial activities or admitting MOE inspectors to DoD installations in Korea. This situation no longer exists. MND established an environmental program in 1995, and recently completed their first remediation project at a closed logistics center in Pusan. MND also opened up their installations, historically considered "off-limits" to all but military personnel, to joint MOE/MND environmental assessments in 1996.

The research pointed out several areas for future study where significant gaps exist in the current data. In-depth site assessments are required to properly characterize the extent of contamination at DoD installations and determine overall cleanup costs and/or potential liabilities. Current information is extremely limited, with little or no data on the subsurface hydrogeology, the contaminant source characteristics, background contaminant concentrations, and contaminant transport pathways which lead to receptor exposure and health risk. Another area for additional study would be to use decision analysis theory to make policy recommendations. Decision analysis theory could be used to suggest "optimal" solutions based on the fundamental objectives of policy makers and the relative values they place on the issues discussed in this thesis. Finally, a risk-based strategic requirements plan should be developed as a means of advocating for and allocating resources.

THE EUPHRATES TRIANGLE

SECURITY IMPLICATIONS OF THE SOUTHEAST ANATOLIA PROJECT

COLONEL F.M. LORENZ US MARINE CORPS
LIEUTENANT COLONEL ED ERICKSON US ARMY

EXECUTIVE SUMMARY

For more than 4,000 years, lands irrigated by the Tigris and the Euphrates have been the scene of violent conflict. History has been shaped by geography and in particular, access to water. The Southeast Anatolia Project in Turkey (referred to as the "GAP") is a major reclamation and hydropower project that has been a government priority since 1961. When complete, the project will consist of twenty-one dams, and irrigate an additional two million hectares of land in southeast Turkey. The GAP has direct consequences for Iraq and Syria, both countries are heavily dependent on the waters of the Tigris and the Euphrates. The impact of the GAP could ultimately reduce the flow of fresh water to Syria and to Iraq (Kolars and Mitchell 1991). These transboundary water issues have the potential to further de-stabilize an already tense region as the GAP is reaches full development in the next twenty years.

In a 1988 article in *US News and World Report*, author R.Z. Chesnoff described a frightening scenario:

November 12, 1993. War erupted throughout the Middle East today in a desperate struggle for dwindling water supplies. Iraqi forces, attempting to smash a Syrian blockade, launched massive attacks on the Euphrates River valley. Syria answered with missile attacks on Baghdad. (Chesnoff 1988)

The scenario depicted by Mr. Chesnoff has not occurred, some ten years after the dire prediction. But the security conditions in the Tigris-Euphrates Basin are unstable, and the potential for "water wars" is still present. This paper explores the relationship between regional security and the river environment of the Tigris-Euphrates Basin. The focus is on Turkey, because a review of Turkish history, politics, and military capability is central to an understanding of the security issues concerning the GAP.

Relationships and external issues in the Tigris and the Euphrates Basin are substantially defined by water. While the Euphrates River connects all three riparian states, political and historic relationships remain bilateral. These three bilateral relationships form a triangle that is linked by the river. The Euphrates connects these bilateral relationships into a series of conflicts and rivalries. These relationships form the basic framework for any potential water-management regime.

Issues between Turkey and Iraq are centered on the concept that water and oil are resources distributed by God (Allah) and this distribution reflects endowment. Turkey sees Iraq's demands in terms of a regional *quid pro quo* of oil for water. If Iraq is willing to provide equivalent resources of oil, water can be provided in return. The basic principle of the Harmon Doctrine where the upstream riparian owns the water and controls its distribution (Lowi, 1993) is often cited by Turkey. Iraq claims Prior Appropriation rights to historical use of the Euphrates and sees no ties whatsoever with oil resources.

Issues between Iraq and Syria are historical competitions over regional strength and authority. Both political systems and leaders are striving to represent a Middle East agenda. The 1975 escalation and tensions over the reduction of the Euphrates flow devolved to a Syria - Iraq conflict that reflected a struggle for power and control much more than over the water itself. While Turkey controlled a significant part of the flow quantity, Turkey was noticeably absent from the conflict.

Finally, Syria has been an active supporter of several insurgency groups directed at the destabilization of the Turkish state. Most visible and successful of these groups, the PKK has had Syrian shelter and support for many years. The tensions over Kurdish nationalism and Turkish sovereignty dominate the relationships between Turkey and Syria. Arab and Israeli issues dominate the regional relationships as Turkey again holds an upstream riparian

position relative to Syria, Jordan and Israel. In the region of the Euphrates River and the GAP project, support of destabilizing elements dominates the relationship.

Security in the Tigris Euphrates Basin is complex, and a casual analysis often raises more questions than it answers. During the author's travel through the region in the summer of 1997 a lack of reliable data was apparent. The parties have taken dramatically different positions on water questions. At the conclusion of the paper there is an attempt to answer six critical questions:

-When will the GAP be fully developed, and when will it begin to take a toll in downstream neighbors? As part of this question, will the GAP, as designed and fully constructed, cause a downstream water shortage during normal use or under conditions of drought?

-What is Turkey's real ability to use the GAP as an instrument of foreign policy? Can the flow of water leaving Turkey be manipulated? If so, how quickly and what impact will it have on hydropower generation and irrigation systems in the region?

-What is the potential for an agreement on allocation of the waters of the Tigris and Euphrates? Will international law provide guidance or assistance in reaching an agreement?

-Instability analysis: What is the potential for Iraq and Syria to use the GAP as a cause celebre or *causus belli*? What is the likelihood of these countries to develop a united front towards Turkey? Would Iraq or Syria act unilaterally? In other words, what is the potential for conflict? Militarily, what is the likely outcome of a conflict?

-What are the alternative scenarios for regional tension and instability over water, looking ahead to the year 2010? Considering all the factors cited above, what is the most probable scenario in 2010?

-What should be the direction of US foreign policy in support of peace in the region, and a basin wide water allocation arrangement?

SUBMARINE NUCLEAR REACTORS IN RUSSIA'S NORTHERN FLEET: ENVIRONMENTAL CONCERNS

Dr. Charles Krupnick
USAFA 34th Education Squadron

Executive Summary

One of the legacies of the Cold War is the environmental damage or potential hazard created by nuclear programs in both the West and the former Soviet bloc. The United States is spending billions of dollars to clean up the damage created by its nuclear weapons program; Russia has enormous problems as well but is much less able to cope with them. A particular danger is posed by the spent nuclear fuel still contained in reactors onboard Russian decommissioned submarines or that has been removed from submarine reactors and placed in temporary storage locations. Submarines are being decommissioned at a rapid rate with no plan in place for proper defueling or dismantlement. Millions of curies of radioactivity, approaching the amounts released in the Chernobyl disaster, may be vulnerable to accident; Northwest Russia, where many of the submarines are located, has been called "a Chernobyl in slow-motion."

The international community became engaged with the Russian submarine spent fuel hazard in the early-1990s when Russia confirmed rumors about dumping reactor cores and other high-level radioactive waste in the Arctic Ocean, a particularly fragile eco-system. Although Russia has halted this practice, Northwest Russia has approximately seventy decommissioned submarines with their fuel installed moored at various locations along the Arctic Ocean and tens of thousands of removed spent fuel assemblies in temporary storage. Some of these are very close to the Norwegian border and a cause for significant concern for Norwegians.

The hazards posed by all of this spent fuel is hard to quantify precisely, in part because Russia has not provided technical data to the West for analysis. It is not an immediate crisis that should be pursued to the exclusion of other projects, such as shutting down the Chernobyl-style nuclear reactors still in use in the former Soviet bloc. It is a major problem, however, that should be addressed on a priority basis and with substantial commitment from both Russia and the international community.

Key elements of a so-called defueling chain must be put in place before much progress can be made. These include construction of defueling ships, construction of interim storage in Northwest Russia, improvement in rail transport to the Mayak reprocessing facility in the Southern Urals, reprocessing and interim storage at Mayak, and establishment of a permanent storage site. Several of these are being addressed by the international community, particularly Norway, and may be completed in the near future. Further action is being held up by difficulties common to all organizations trying to do business in Russia, by the "... lack of any legal structure to safeguard their investments and their contracts and the combination of anarchy and corruption in the taxation system." Of particular concern is legal and financial liability. Moving nuclear spent fuel is a hazardous procedure; a spent fuel accident could cause widespread damage and lead to enormous financial claims, reminiscent of the Bhopal disaster in India. Norway in particular is pressing Russia for blanket exclusion from liability for the assistance it hopes to give with spent fuel problems; Russia wants to treat each case separately and complains about being singled out on liability matters.

The United States is engaged in Russia's radioactive waste problem on a number of fronts, including the Murmansk Trilateral Initiative to expand Russia's liquid waste purification capacity and the Arctic Military Environmental Cooperation (AMEC) program. Of six current AMEC projects, the most important is the design and construction of new-style spent fuel storage and transport containers. These will first be used to store the damaged nuclear icebreaker spent fuel from the service ship *Lepse*, perhaps the single greatest environmental hazard in the region. The new containers may also be used for submarine spent fuel. More, however, could certainly be done. Although U.S. engagement with Russia on science and technology issues is substantial, particularly through the Gore-Chernomyrdin Commission (GCC) and the Cooperative Threat Reduction Program (CTRP or Nunn-Lugar), relatively little funding and high-level attention has been given to the submarine spent fuel issue.

International regimes, such as the IAEA Contact Experts Group on radioactive waste in Russia, are doing a good job at improving communications, at keeping the issue in front of governments and the public at large, and at tracking work in progress. International business alliances are beginning to form that may allow a systems approach to the problem and perhaps finally to create a plan agreed to by all parties. No single part of the defueling chain or its supporting requirements is mysterious or unachievable, but the interrelation of technical, bureaucratic, legal, and funding constraints has made significant progress very hard. Any time and effort made to overcome the bottlenecks is certainly worthwhile. To quote former Russian security chief Alexander Lebed: "Today we cannot find tens of billions of rubles [to remedy the spent fuel problem], tomorrow we will be looking for tens of billions of rubles to liquidate the consequences What will we do when the devil is loose?"

ENVIRONMENTAL SECURITY IN THE CZECH REPUBLIC: CONCERNS AND THE POTENTIAL FOR CONFLICT

Capt Paul J. Valley
USAFA Department of Biology

EXECUTIVE SUMMARY

Since the 1989 Velvet Revolution and the 1993 Velvet Divorce, the Czech Republic has made great strides, both economically and environmentally, in becoming a stable, yet improving state in transition to democracy. By way of political, economic, social, and industrial reforms, the new Czech Republic has no doubt been revitalized. This revitalization, however, brought along with it some negative environmental impacts.

Automobiles, industries, and power plants continue to emit significant amounts of pollutants into the air and water, although serious technological and legislative efforts continue to reduce these emissions. Coal mining, as well, continues to destroy thousands of acres of Czech lands, although reclamation efforts are greatly reducing these impacts. Although problems persist, the Czech Republic is committed to continuing their battle against air and water pollution, poor waste management practices, and the needless destruction of nature.

The Czech Republic has incorporated several new industrial technologies and has received outside assistance, from other European countries and the US, in the form of informational, technological, and financial support. This has been especially beneficial in the Republic's clean-up efforts and in their quest for new economical, efficient, and environmentally safe alternative energy sources for the country. Privatization in the Republic has aided in these efforts internally as well. Private reclamation companies are providing a much needed, and effective, service to the country as they work toward solving and "fixing" many environmental problems.

Also, adding to the Czech Republic's advancements in environmental improvement efforts are new pieces of federal legislation, particularly: the Clean Air Act of 1991, the amended Water Management Act of 1992, the Czech National Council Act on the Protection of Nature and the Landscape of 1992, the Waste Management Act of 1992, and the Waste Control Act of 1997.

I believe that a shift to natural gas and nuclear power will further decrease the emissions of carbon dioxide and other pollutants in the air, and provide a more efficient means of energy production. Shifting the structure of primary energy sources in the Czech Republic to qualitatively better fuels, along with the gradual introduction of less energy-consuming technologies and the opening of the Temelin Nuclear Power Plant, will eventually replace most of the output of coal-burning power plants.

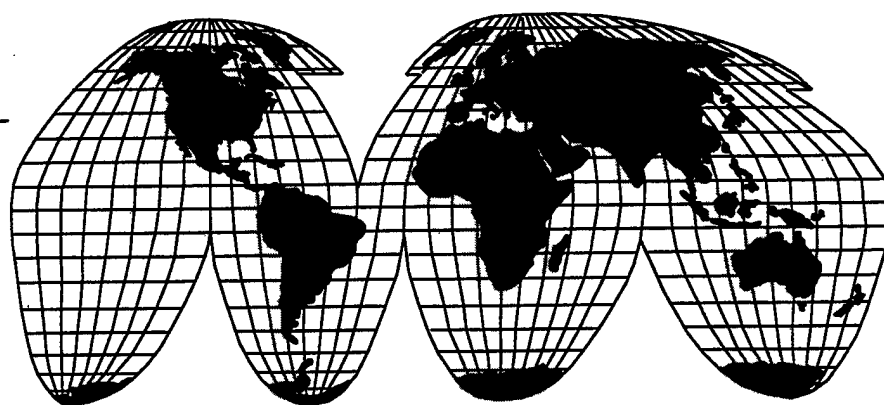
Political and environmental activist groups, in particular Greenpeace and smaller local activist groups, have gathered momentum in recent years. Several groups have protested the construction of the Temelin Nuclear Power Plant, and they continue to do so. Internal confrontations have risen with environmental groups providing more information about the environment to the Czech general public. The potential for further increases in internal conflict may rise with advancements made in nuclear technologies, planning, and construction; and

although not a major problem at this time, should be considered an increasingly possible threat in the coming months and years.

The Czech Republic's current relationships with its neighboring countries have been strengthened through a series of negotiations and signings of bilateral agreements concerning air and water pollution (particularly with Poland and Germany in dealing with the Black Triangle region), waste management, and nature protection. Overall, relationships with Poland and Germany are solid; and although there are major philosophical differences with Slovakia in terms of how to best approach the democratization and marketization of their countries, Czech-Slovak diplomatic ties remain stable.

Of concern at the international level is Austria's protesting of the construction of the Temelin Nuclear Power Plant. Since Austria is a non-nuclear state and propagates negative information about nuclear power to its citizens and to other countries, one can see the reason for concern. To this point, there have been no political or military threats, or injurious confrontations, but concerns seem to be rising as the operational date of the new Temelin reactor site approaches (scheduled for 1998 or 1999).

The Czech Republic's infrastructure appears to be intact and is successfully supporting the environmental issues facing the Republic today. I was impressed with the Czech Republic's rapid economic and environmental developments, and with their efforts to consistently improve upon current environmental initiatives. The supportive relationships between neighboring countries, government agencies, private reclamation companies, and industries were also impressive. Despite the Czech Republic's strong start in terms of economic development and its battle against environmental problems, continued foreign support and investment will undoubtedly be necessary for the Czech Republic to reach the level of other westernized countries. Although I foresee no imminent major areas of concern involving the potential for internal or international conflict, certain events and relationships do warrant continued monitoring.



Appendix B

Briefings

1997 Research Conference

AIR AND SPACE POWER: DECISIVE INSTRUMENT OF NATIONAL POWER

MAJ PEGGY PALMER
ACSC RESEARCH: 97-0517
INSS PROJECT: USAF POLICY

DECISIVENESS

- THE DECISIVE ELEMENT OF NATIONAL POWER
 - BE THE ONLY MILITARY IOP USED,
 - IN ACHIEVING THE NATIONAL SECURITY OBJECTIVES FOR THE CONFLICT, AND,
 - TO HAVE DONE SO IN A RELATIVELY SHORT TIME.

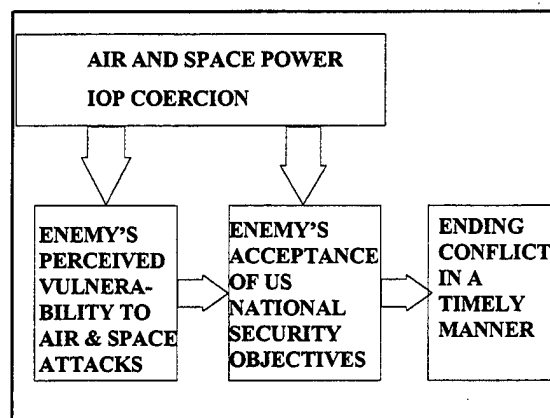
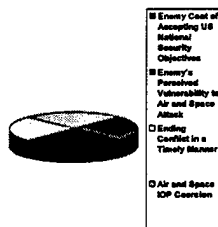
SIGNIFICANCE OF PROBLEM

- MORE REGIONAL CONFLICTS IN FUTURE DUE TO WEAPONS PROLIFERATION
- IMPORTANT TO KNOW WHEN AIR AND SPACE POWER CAN RESOLVE CONFLICT
 - GLOBAL, QUICK, AND MINIMUM CASUALTIES

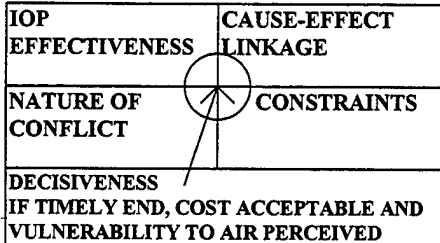
APPROACH

- ANALYZE FIVE HISTORICAL CONFLICTS
 - WWII GERMANY AND JAPAN, KOREA, VIETNAM, AND DESERT STORM
- DEFINE ELEMENTS OF DECISIVENESS
- CONDITIONS FOR DECISIVENESS
- PLANNING TOOLS

FOUR DETERMINANTS OF DECISIVENESS



CAN MIL IOP CAUSE ENEMY TO ACCEPT OUR NATIONAL OBJECTIVES?



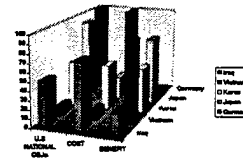
IOP EFFECTIVENESS

- | | |
|---|--|
| Gulf War <ul style="list-style-type: none"> - stealth - precision guided munitions - dry arid desert climate in Middle East (good weather/clear skies generally) - flat desert geography - central source of supply with limited transportation - forward basing - mechanized forces - political isolation (no superpower supplier) - sophisticated US air and space reconnaissance and surveillance systems - high intensity conflict - industrialized state (high value targets) - defense suppression (gained middle altitudes) - medium power - short duration - no target restrictions (until bunker) - 6 month buildup | <ul style="list-style-type: none"> - political target restrictions in Baghdad after Al Firdos bunker disaster - SCUDs as a political requirement - dug in enemy |
|---|--|

COST-BENEFIT ANALYSIS

	US National Security Objectives	Cost	Benefit
Vietnam	Lenient-(10%) Removal of US troops, and temporary halt of aggression	Low (10%) - No territory lost (large numbers of people, namely guerrillas died, but this was an acceptable price to pay by the NV for their ultimate objective of reunification)	High (90%) - Got US troops to withdraw and was allowed to keep NVA troops in South Vietnam (both enabling the eventual takeover)
Gulf War	Moderate-(50%) Liberation of Kuwait and promoting stability in the region	Moderate/High (75%) - Meant destruction of majority of military equipment meaning reduction in perceived and actual power in Gulf/give up occupied Kuwait	Low/Moderate (25%) - Iraq state not threatened-retains national sovereignty

ENEMY ACCEPTANCE OF US NATIONAL OBJECTIVES



VULNERABILITY TO AIR AND SPACE ATTACK

- ENEMY'S PERCEPTION OF VULNERABILITY TO AIR ATTACK IMPORTANT
 - CAN BE KEY TURNING POINT IN CONFLICT
 - CAN RESULT IN ACCEPTANCE OF US NATIONAL POLICY OBJECTIVES
 - WWII JAPAN
 - KOREA

TIMELY END OF CONFLICT

- DECISIVENESS IMPLIES ENDING CONFLICT IN A RELATIVELY SHORT TIME
- AIR AND SPACE POWER USED OVER THE COURSE OF A PROTRACTED WAR OR A WAR OF ATTRITION WILL NOT BE DECISIVE

LEVEL OF DETERMINANTS

	GERMANY	JAPAN	KOREA	VIETNAM	DESERT STORM
SEVERITY OF NATIONAL OBJECTIVES	H	H	M	L	M
COST	H	L/M	M	L	M/H
BENEFIT	L	M/H	M	H	M/L
PERCEIVED VULNERABILITY TO AIR POWER	L	L>H	H	M>H	H
AIR POWER EFFECTIVENESS	M	H	M	L>M	H

LEVEL OF DETERMINANTS

	GERMANY	JAPAN	KOREA	VIETNAM	DESERT STORM
CAUSE-EFFECT LINKAGE	H	H	M	L>M	H
NATURE OF CONFLICT	SYM-METRIC	SYM-METRIC	ASYM-METRIC	ASYM-METRIC	SYM-METRIC
LENGTH OF CONFLICT	H	H	H	H	L
CONSTRAINTS	L	L	H>L	H>L	L

LEVEL OF DETERMINANT MATRIX RESULTS

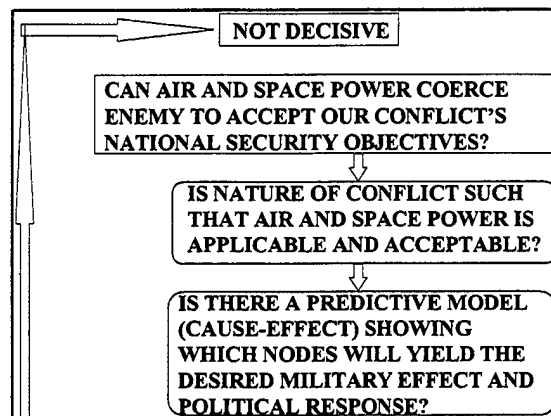
- PLANNING TOOL
- AIR & SPACE POWER HIGH DECISIVENESS PROBABILITY WHEN:
 - LESS SEVERE US NAT'L SECURITY OBJs
 - ENEMY ACCEPTANCE AT LOWER COST
 - ENEMY PERCEIVED HIGH VULNERABILITY TO AIR/SPACE POWER
 - HIGH MIL IOP EFFECTIVENESS

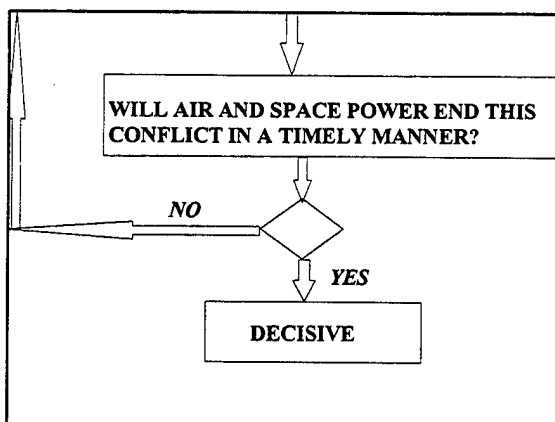
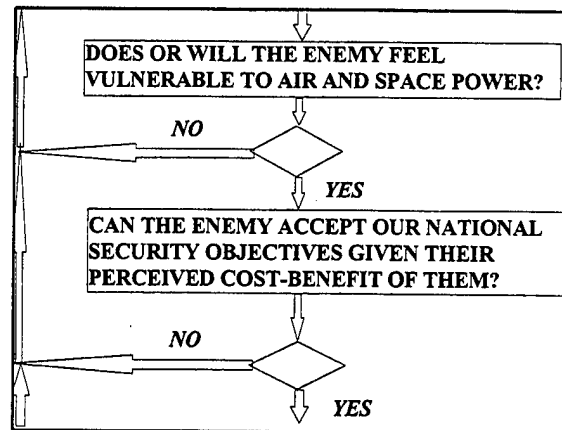
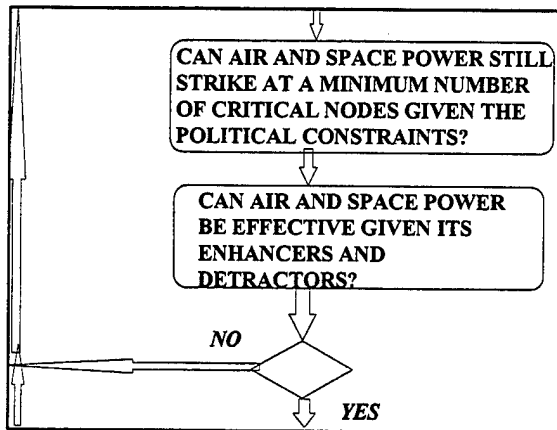
LEVEL OF DETERMINANT MATRIX RESULTS

- DEGREE OF FACTORS CONTINUED:
 - HIGHER CAUSE-EFFECT LINKAGE
 - NATURE OF CONFLICT IS MORE SYMMETRICAL
 - CONFLICT CAN END IN A RELATIVELY SHORT TIME
 - FEW POLITICAL CONSTRAINTS LIMITING AIR AND SPACE POWER

DECISIVENESS FLOW DIAGRAM

- PLANNING TOOL
 - DECISION TREE TO DETERMINE IF DECISIVENESS CONDITIONS EXIST FOR A GIVEN CONFLICT
- SEQUENCE OF STEPS WHICH TERMINATE IN A BRANCH
 - "NO" TO ANY CONDITION DECREASES PROBABILITY THAT AIR/SPACE POWER WILL BE THE DECISIVE INSTRUMENT





CONCLUSION

- AIR AND SPACE POWER CAN BE THE DECISIVE INSTRUMENTS OF NATIONAL POWER
 - OPERATION EL DORADO CANYON
 - ALMOST IN DESERT STORM
- IMPORTANT TO KNOW WHEN
- PLANNING TOOLS DEVELOPED TO HELP DETERMINE WHEN AND UNDER WHAT CONDITIONS

Joint Vision 2010

**Focused Logistics
& Air Mobility**

Lt Col Dave Estep

OVERVIEW

- **JV 2010**
- **Focused Logistics**
- **Air Mobility**
- **Key Concepts**
- **Challenges**

JOINT VISION 2010

- **Overarching Principles**
- **Strategic Guidance**
- **Implementation Plan**
- **Operational Concepts**

FOCUSED LOGISTICS

- **Operational Concept**
- **Roadmap and Implementation**
- **Supporting Initiatives**
- **Tenets of Focused Logistics**

FOCUSED LOGISTICS

The fusion of information, logistics, and transportation to provide rapid crisis response, to track and shift assets, even while enroute, and to deliver tailored packages and sustainment directly at the strategic, operational and tactical level of operations.

INITIATIVES
SUPPORTING FOCUSED LOGISTICS

- | | |
|------------------------|---------|
| • JRSO&I | • GCSS |
| • JTAV | • GTN |
| • LOTS | • JFAST |
| • Agile Combat Support | • AIT |
| • Lean Logistics | • GATM |
| | • AEF |

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TENETS FOCUSED LOGISTICS

- Joint Deployment/Rapid Distribution
- Information Fusion
- Joint Theater Logistics Command and Control
- Multinational Logistics
- Joint Health Services Support
- Agile Infrastructure

AIR MOBILITY

- DTS and Air Mobility
- Rapid Crisis Response
- Asset Visibility
- Precision Delivery

KEY CONCEPTS

- The Logistics System
- Real Time Air Mobility

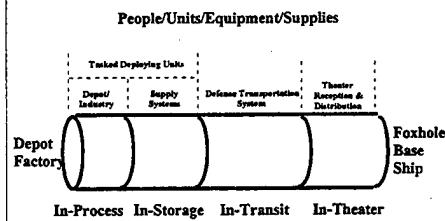
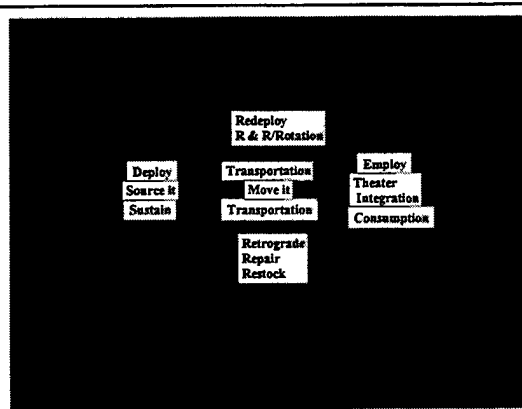


Figure 1



AMC Partnership in Focused Logistics

Supporting Concept to Focused Logistics	Requirements	Other Key Players	Programs / Proposed Solutions	AMC Relative Costs (\$)
Rapid Crisis Deployment	Deployment & Sustainment Process Improvement	Entire Joint Community (Deploying Units, Supply, DTS, & Theaters)	Joint Affiliation Education & Training Process Improvement Studies	LOW
Asset Visibility	JTAV & ITV	Joint Logistics Issues; Primary Ownership USMC	GTN & Federate Info Systems with AIT	MODERATE
Resource Diversions for Precision Delivery	Real-Time Command & Control in Exercises	Primarily AMC; Organizational Relationships with Theater Air Comp. Commands	Moderate Comm/Nav Equipment Command Agreements Exercise Infrastructure Couple to GTN/GCSS	HIGH

Figure 3

CHALLENGES

JV 2010

- Long Term Effort
- Institutionalize the Process
- Bumper Sticker to Reality

CHALLENGES

FOCUSED LOGISTICS

- Break Down Barriers
- Ops-Log Partnership
- Concept of Maneuver

CHALLENGES

AIR MOBILITY

- Resource Allocation
- Manage in Real Time
- User Confidence
- Flexible Options

SUMMARY

- JV 2010
- Focused Logistics
- Air Mobility
- Key Concepts
- Challenges

***Briefing: Vulnerability of U.S. Financial Markets to an IW
Attack***

Major Mark M. Nickson

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INFORMATION WARFARE

VULNERABILITY OF US FINANCIAL MARKETS TO AN IW ATTACK

Major Mark M. Nickson
Commander, 34 CCS

PURPOSE

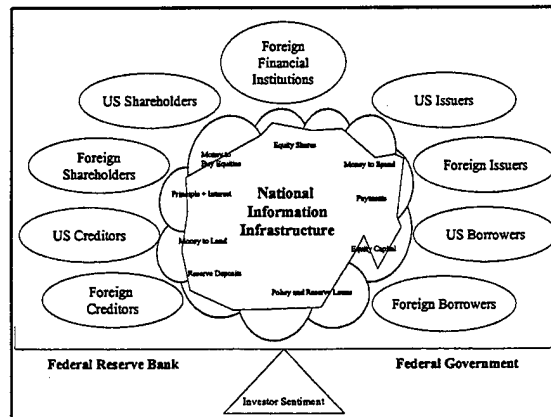
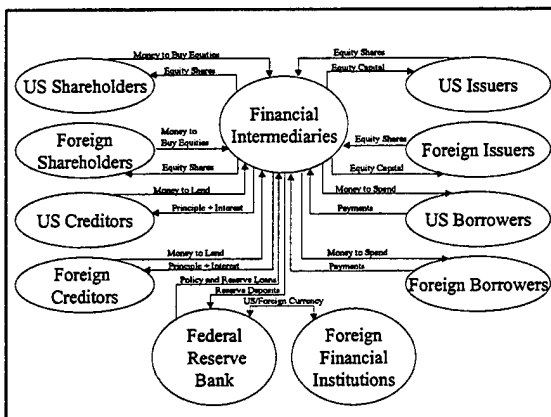
- IDENTIFY POTENTIAL
VULNERABILITIES OF US FINANCIAL
MARKETS TO IW ATTACK
- RECOMMEND APPROACH TO
SAFEGUARDING US MARKETS

THESIS

- IT HAS FUNDAMENTALLY
TRANSFORMED US FINANCIAL
MARKETS
- NII BECOMES A KEY COG TO
ATTACK
- MULTIDISCIPLINARY APPROACH
WILL REDUCE VULNERABILITIES

US FINANCIAL MARKETS

- INFORMATION TECHNOLOGY
IMPACT
 - » INCREASED EFFICIENCY OF
TRANSACTIONS
 - » DECREASED COST OF COORDINATION
 - » INCREASED LEVEL OF
SOPHISTICATION



VULNERABILITIES

- MANY SYSTEMS ISOLATED
- LACK OF REPORTING
- CONVENTIONAL ATTACKS
- NON-CONVENTIONAL ATTACKS
 - HACKER
 - INSIDE JOB

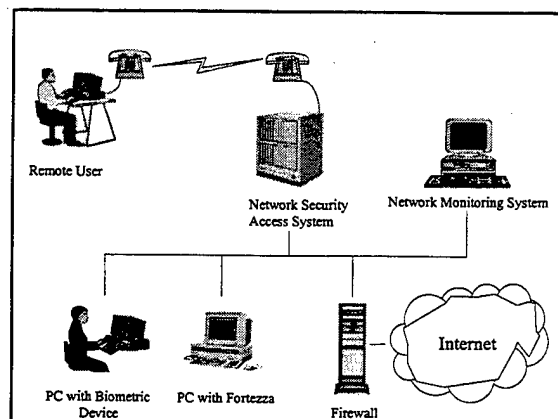
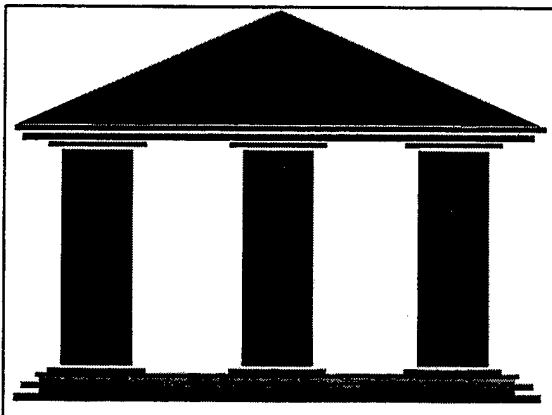
HACKER TECHNIQUES

- IP SPOOFING
- PACKET SNIFFING
- PASSWORD CRACKING/THEFT
- SENDMAIL
- SOCIAL ENGINEERING
- VAN ECK PHREAKING

INSIDER JOBS

- MINESWEEPER EASTER EGG

PROTECTING THE MARKETS



MANAGERIAL

- VULNERABILITY AND RISK ASSESSMENT
- SEPARATION OF DUTIES
- STRINGENT ACCESS CONTROLS
- AUDIT TRAILS
- WRITTEN POLICIES
- WRITTEN CONTINGENCY PLANS
- CERT TEAM
- TRAINING

GOVERNMENT

- 100 PERCENT REPORTING
- NII THREAT CENTER
- CRYPTOGRAPHIC POLICIES
- ECONOMIC POLICIES

CONCLUSION

- NO PANACEA -- JUST COMMON SENSE

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***Briefing: An Examination of the Concept and its Potential
Effect on Intelligence Collection***

Lieutenant Colonel Cathy A. Dreher

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*An Examination of the Concept and
its Potential Effect on Intelligence
Collection.*

Presented by:
LtCol Cathy A. Dreher

Unclassified

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[Redacted]

- Why This Topic?
- Research Methodology
- Research Findings
- Recommendations

Unclassified

[Redacted]

.....

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[Redacted]

- Looking to the Future of Warfare
- Conversation with ACSI
- Personal Interest in Systems Technology

Unclassified

[Redacted]

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[Redacted]

- Review of the Literature
 - Internet
 - Library
 - NDU
- Interviews
 - Questionnaire
- Formal NDU Class

Unclassified

[Redacted]

.....

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[Redacted]

- Plethora of Data
- Computer Crime on the rise
- U.S. Intelligence Collection is Vulnerable
 - “Trusted Agent” Threat
 - Information Terrorist
 - Rogue Nations

Unclassified

[Redacted]

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[Redacted]

- Assigned Personnel
 - Espionage
 - Network Vulnerabilities
- Numerous Means of Transmission
 - FAX
 - Diskette
 - E-mail

Unclassified

[Redacted]

.....

- Hackers
 - Thrill Seekers
 - Malicious Intent
 - Stealing Information
 - Corrupting Information
 - Destroying Information

Unclassified

- Growing Vulnerabilities Within the US
- Many Hackers Are Caught -- What About the Successful Ones
- Long Term Study
- Databases Built
- Insidious by Nature

Unclassified

- Numerous Targets available
 - Both DoD & Civilian Community Involved
 - Financial
 - Communications
 - Transportation
 - Medical
- U.S. Actively Involved in Countering Threat

Unclassified

- Derive Common IW Language
 - Services and Public
- Increase Training and Awareness
 - Public and DoD
- Identify Foreign Vulnerabilities
 - build databases
- Study Lessons Learned

Unclassified

- Find IW Offensive & Defensive Options
 - Suggestion Program
 - Think Outside the Box
- Mandate Info Sharing between Agencies
 - Collaborative Production Environment

Unclassified

***Briefing: Dual Containment and Iran: Understanding and
Assessing U.S. Policy***

**Peter J. Bunce
Derek F. Offer**

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DUAL CONTAINMENT AND IRAN
Understanding and Assessing US Policy

Peter J. Bunn
Derek F. Offer
Fellows, Center for International Affairs
Harvard University

*"The longer deterrence succeeds,
the more difficult it is to demonstrate
what made it work."*

Henry Kissinger

OVERVIEW

- Dual Containment toward Iran
 - How did the U.S. get here?
- The Real Iran
 - Reality judgments on Iran's objectionable behavior
- U.S. Policy Analysis
 - Successes and failures
- Is It Time for a Change?
 - Toward a coherent strategy
 - A competitive strategy

**CRITERIA FOR THREAT
TO U.S. INTEREST**

- Threatens survival of U.S. or key allies
- Threatens critical U.S. economic interests
- Poses danger of a future nuclear threat

**REGIONAL U.S. SECURITY
INTERESTS**

- Lasting and comprehensive Middle East peace
- Security of key partners
- Free flow of oil at reasonable prices

**CHALLENGES TO
REGIONAL STABILITY**

- Iran
- Iraq
- Proliferation of WMD and ballistic missiles
- Terrorism
- General regional issues

REGIONAL OBJECTIVES

- Iraq - Comply with all relevant UNSCRs
- Iran - Change behavior in key areas
 - Efforts to obtain WMD and missiles
 - Support for terrorism and groups that oppose peace process
 - Attempts to undermine friendly regional governments
 - Dismal human rights record

REGIONAL STRATEGY

Containment of threat from Iran/Iraq;
limit, isolate aggressive violent behavior

Engagement with regional friends;
demonstrate commitment to Gulf security

ENGAGEMENT

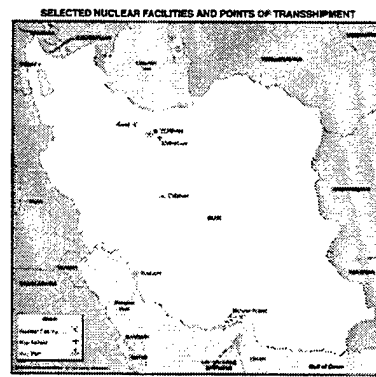
- TIER I - Strengthen defense capabilities of individual states
- TIER II - Promote regional GCC and inter-Arab defense cooperation
- TIER III - Enhance ability of western forces to return in a crisis

SPECIAL CONSIDERATIONS

- 7,000 miles distant
- No formal regional alliances
- No standing arrangements - AD HOC
- No permanent U.S. bases

THE REALITY OF CONTEMPORARY IRAN

- Weapons of mass destruction
- Terrorism and political or religious assassination
- Middle East peace process obstruction
- Destabilizing neighbors
- Human rights



IRAN'S CHEMICAL WEAPONS PROGRAM

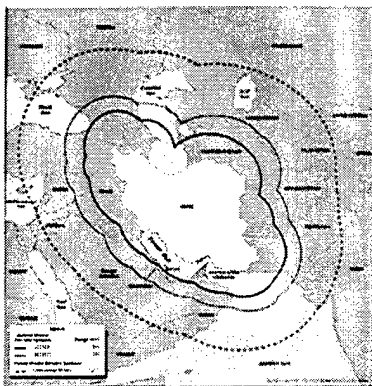
- History
 - Begun in response to Iraqi chemical weapons attacks
 - By 1987, Iranian military employs artillery to deliver mustard and cyanide munitions
 - In 1989, Iran reported 10,000 war deaths (5,000 civilians) and 100,000 casualties from Iraqi chemical attacks

Sources: The Islamic Republic of Iran: Hostility Abroad, Insouciance at Home, CIA Whitepaper (unpublished), Dec 13, '96, pp. 17-18.
Proliferation: Threat and Response, Office of Secretary of Defense, Apr 1996, pp. 15-16.
Michael Eisenstadt, Iranian Military Power: Capabilities and Intentions, 1996, pp. 26-27.

IRAN'S CHEMICAL WEAPONS PROGRAM (cont'd.)

- Scope
 - Iran has most active chemical warfare program in the developing world
 - Iranian chemical stockpile is estimated to exceed 2,000 tons of:
 - Blister agent (mustard)
 - Blood agent (cyanide)
 - Choking agent (phosgene)
 - Nerve agent (sarin) *postulated*
- Known Facilities
 - Qazvin, Parchin and Esfahan

Sources: The Islamic Republic of Iran: Hostility Abroad, Insouciance at Home, CIA Whitepaper (unpublished), Dec 13, '96, pp. 17-18.
Proliferation: Threat and Response, Office of Secretary of Defense, Apr 1996, pp. 15-16.
Michael Eisenstadt, Iranian Military Power: Capabilities and Intentions, 1996, pp. 26-27.



DIRECTLY ATTRIBUTABLE IRANIAN STATE SPONSORED TERRORIST INCIDENTS IN EUROPE 1990-1996

<u>Country</u>	<u>Year</u>	<u>Terrorist Act</u>
France	1990	Iranian dissident Cyrus Elahi murdered
Switzerland	1990	Kazem Rajavi, brother of MEK leader murdered
France	1990	Former Iranian Prime Minister Shapur Bakhtiari murdered
Germany	1992	Kurdish leader Sadiq Sarafkandi and 3 colleagues murdered at Mykonos restaurant
Turkey	1993	Prosecutorialist journalist Ugur Mumcu murdered
Italy	1993	Mohammed Hussein Naghdli, Senior MEK leader murdered
Turkey	1995	Jewish community leader Yuda Yarum survives car bomb attempt
Turkey	1996	Two MKO activists murdered
Belgium	1996	Iranian agents caught smuggling very large mortar and ammunition into Antwerp

POLICY SUCCESSES

- 1995 - Arms imports down 50% from 1992
- Wassenaar arrangements - 30 governments prevent arms/dual use acquisition
- 1996 - No evidence that any terrorist organization has obtained contraband nuclear materials

POLICY SUCCESSES (cont'd)

- Recent German court verdict on Mykonos attack
 - E.U./Canada recall of ambassadors
 - Suspension of critical dialogue
- Ukraine reversal on turbine sale

POLICY FAILURES

- Russia's nuclear reactor contract with Iran
- Bushier reactor
- China's "peaceful nuclear cooperation" with Iran
 - Isotope separation unit
 - Enrichment technology
 - Research reactor
- Unilateral vice multilateral embargo
- E.U. rejection of extra-territoriality

POLICY FAILURES (cont'd)

- Support for terrorist organizations
- Continued inflammatory rhetoric
- Rushdie Fatwa

TOWARD A MORE COHERENT STRATEGY

- Dual Containment as a "Holding Action"
- Winds of change
 - Hardliners
 - Changing of the guard
 - Calls for changing course
 - Mykonos verdict
 - Iranian domestic politics
- Tier prioritization of vital concerns

COMPETITIVE STRATEGY

- STEP 1: No nukes
- STEP 2: Collective action on terrorism
- STEP 3: No resurgent Iraq
- STEP 4: Delivery system denial
- STEP 5: Incremental dialogue
- STEP 6: Encouragement of pragmatists
and youth

*"U.S policy must be the art of the
possible, not the posturing of the
impractical."*

Anthony Cordesman
March 2, 1995

***Briefing: Future Security Assistance and Military
Cooperation in Africa***

Lieutenant Colonel Karl Prinslow

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Future Security Assistance and Military Cooperation in Africa

LTC Karl Prinslow

Analyst for Africa
Foreign Military Studies Office
Ft. Leavenworth, KS 66027

Future Military Cooperation

- *Better relations with African militaries will be built on the conduct of combined training and not the future transfer of material or weapons.*
- **SITUATION**
- Not the political will for military aid.
- US has interests in Africa and the military plays an important role in their support.
- we can maintain/enhance mil-to-mil relations via judicious imaginative and innovative use of O&M budget.
- Objective is the improvement of mil-to-mil relations

The Problem

- Relations in Africa in the absence of direct military aid
 - lack of US credibility
 - communicate no more FMF
 - attitude of dependency on the US
 - past policies of imposed sanctions
 - US cross cultural accommodation
 - interagency cooperation

SURVEY and INTERVIEW RESULTS

ATTITUDES

U.S. Headquarters attitude/perception rosier than the field

U.S. equipment is reliable, high quality

U.S. government is not reliable or credible

Africa is marginalized via the FMS/SA system

- delivery slow, unresponsive
- byzantine administration
- lacks foreign nation advocacy
- Africa low priority

Interagency cooperation is an exception

Survey and Interview Results cont'd

Training vs. Maintenance vs. Acquisition

Exercises - expertise in technical and C2 and develop military institution in democracy
prestige and demonstration of respect
exposure to new ideas, technology, interoperability and doctrine
support a winner
recognition that the U.S. cannot do it all

Privatize Security Assistance Functions

Terminology

- Military cooperation activities : non-combat activities conducted by US DOD in which foreign nations participate
 - a more complete umbrella for security assistance programs as well as other forms of interaction or engagement with foreign militaries.
 - An attitudinal shift
 - envisions a more mature partnership
 - reflects importance and recognition of working together as partners toward a common goal or objective. Reflects recognition of the other party's abilities.....

U.S. Military Strategy in Africa

- Mil Coop Activities - shape, prepare and respond
- EUCOM -TSPS
 - Focus countries
- CENTCOM - Strategy of Preparedness
 - Tier I, Tier II, Tier III
- EUCOM vs. CENTCOM

U.S. Military in Africa

- Assumptions
 - military will remain important to U.S. foreign policy
 - no more direct military aid
 - coalitions in lieu of unilateral action
 - military will remain "engaged"

Means and MoE

- Means =Programs and Activities
 - IMET
 - ALP
 - JCET
 - JCS
 - MEDCAP, MEDRETE, MEDFLAG
 - HA, HCA, HAP-EP
 - ACRI
 - PME Interactions
 - FMS
- Measures of Effectiveness - subjective, not quantifiable; ECOM = classified

Measures of Effectiveness

	Influence on Foreign Military	Access	Sale of US goods	US Mil Training Benefits	Mil to Mil Relations
FMS	O	O	+	O	+
IMET	+	+	O	+	+
ALP	+	O	+	O	+
JCET	O	+	O	+	+
MEDFLAG	O	+	O	+	+
MEDCAP	O	O	O	+	O
HCA/HAP-EP	+	O	O	+	O
JCS Exercises	+	+	O	+	+

Recommendations for Future Strategy

- New relationship based on mutual respect, cooperation as equal partners in mutually beneficial activities - mil cooperation activities
- Increase HN contribution and ownership of activities
- Balance U.S. contributions with HN contribution
- Integrate SA into exercise Mil Coop Activities
- Sub-Unified Command
- Consistent, sustained, holistic

An Ideal Exercise

- JCS Exercise - joint and combined
- Conventional forces with SOF
- Preceded by combined ERC project
- HN CS and CSS
- Simulations support to C2
- Simultaneous MEDCAP and HCA projects
- Incorporate PKO & HAO mission to support ACRI

Specifics for the Future

Funding Sources

- FMS Cases
- other FMFP

Partnership for Africa and JCTP

ACSS

Counter-trade

Privatization of Mil Coop Activities

French language edition of Military Review

EDA

Multi-lateral Military Cooperation

Interagency Coordination and Cooperation

CONCLUSIONS

Military Cooperation activities achieve goals through:

- influence with senior and rising personnel.
- access to these personnel through shared common experiences
- professionalization and civil subordination of the military
- African military awareness of American military culture
- regional cooperation in support of regional cooperation
- improved security environment which encourages greater productivity and commerce.
- reassurance by providing a general sense of security that is not specific to any threat or scenario.

SA in National Strategy

- U.S. Interests in Africa
- National Security Strategy
- National Military Strategy
 - EUCOM Theater Security Planning System to address its strategy of Engagement and Preparedness
 - CENTCOM Strategic Plan II, 1997-99

Humanitarian Programs

HA	HCA	HAP-EP
	US units deployed DA funded	
eg. Benin FY97 medical theme		
HA	HCA	HAP-EP
assess clinic	MEDDFLAG	medical supplies
const	\$50,000	\$200,000

SA Components Non-Standard Examples

- Kenya 1996
 - ERC Project - Infantry Live Fire Range
 - HCA - building two dormitories
 - MEDCAP
 - HN Participation
 - Water wells
 - C2 for Convoys
 - Ground Transportation & port handling asst.
 - Engineer work and construction

Security Assistance Components

- Foreign Military Sales
 - Foreign Military Financing Program (FMFP)
 - Military Assistance Program (MAP)
 - Excess Defense Articles (EDA)
- Economic Support Fund
 - Humanitarian Assistance (HA)
 - HCA
 - HAP-EP
 - DCA
- IMET Program

The Future of Security Assistance

- Funding cut-backs
 - imagination, innovation initiative
- Operations and Maintenance Funded
- Synchronization
- NGO Integration
- More DFT/Deployments
- Exercises, ship visits, port calls etc.

SAO/ODC/OMC/MAAG/ or JUSMAAG

- CINC Representative (possible USDR)
 - support all Unified Command activities
- Advocate for defense sales abroad via
 - trade promotion
 - industry roundtables
 - embassy team, i.e. work with comm officer
 - negotiation team
 - market information
 - allocation of EDA

Security Assistance Office

- “to promote rationalization, standardization and interoperability (RSI) and other defense cooperation measures (only) among members of NATO, Japan, Australia and New Zealand
- End use monitoring of Defense Articles and Services
- Return and Exchange of Defense Articles
 - process FMS repairs in same manner as DOD
 - now positive legal authority to buy-back items

The Role You Will Play

- Regional Exercises - combined and joint
- Demining and other operational activities
- CONOPS
- THESE CAN BE SECURITY ASSISTANCE
a.k.a.. MILITARY COOPERATION

What you will see different in Africa

- French activities in Africa
- French - U.S. relations vis-à-vis Africa
- UK actions/activities
- Security Structure
- ACRI

Africa Crisis Response Initiative

Genesis

- Geo-political changes - bipolar to multi-polar
- France and UK approaches

Present

- equipment and training
- training schedule
- NGO/PVO participation
- Foreign interest

ACRI the Future, part 1

ACRI = a practical means of coordinating international efforts to enhance African capacity

ACRI also = a bilateral U.S. training initiative to enhance African capacity to respond quickly and effectively to PKO and humanitarian crises in Africa

Benefits (DOS) = mil-civil relations

= mil-NGO/PVO relations create a team

ACRI Assessment

- Supports regional stability, safety of US citizens, cooperation
 - Must encourage African ownership, be sensitive to an African lead without hegemon domination
 - US must resist trumpeting a foreign policy triumph ... strategy that remains clear that Americans are in support of African efforts to transform their regional security system, not imposing solutions from Washington.
 - imparts intangible and tangible skills
 - civil-military relations, cooperation, interoperability
 - cohesive unit training
 - supports US SOF METL
- Limitations:
- funding, consistent, long term training plan
 - no police, limited maintenance training
- Advantages
- US commitment demonstrated

ACRI the Future, 5 year plan

CRI International focus = P-3

match donor resource advantages to African needs

U.S. = PKO soldiers skills training, comms equipment, specialized equipment, uniforms, (simulations??)

France = multi-national exercises and training

U.K. = senior officer staff training

ACRI the Future, 5 year plan

Coordination efforts - Proposed

African PKO Support Group

- forum to share information on activities re: African PKO
- objective: sustain political support
- open to all including the UN and OAU

Coordination Group

- countries committing resources
- informal and non-binding

non-binding no controlling decisions consultative

Sustainment & Training Program

Train cohesive units in collective tasks

Phase I - Initial Training

Phase II - Sustained Training Events (ST)

ST 1 - Logistics

ST 2 - Bn Staff Training, C2

ST3 - Bde Staff Training, C2

ST4 - Train-the-trainer

ST5 - Train-the-trainer

ST6 NGO/PVO Training

Multi-national sustainment training

ACRI the Future

Dept of State Five Year Plan

- long term planning and financing
- multi-national regional exercises
- sustainment training exercises

Additional recommendations

- don't despair ... ACRI is not a panacea nor an immediate solution
- broaden support for ACRI... Congress, DOS, UN, OAU
- US DOD actions: improve C2, BCTP, Center for Strategic Leadership
 - ACSS, regional training centers, regional exercises
- improve logistics, mobility and maintenance
- use NG, USAR and conventional forces

IMET

IMET ...provides U.S. training on a grant basis to students from allied and friendly nations. IMET is an investment in ideas and people which has an overall positive impact on the numerous people trained.

Objectives:

- encourage effective mutually beneficial relations and increased understanding
- improving ability of foreign countries to utilize their resources/material
- increase awareness of human rights

IMET cont'd

- Restriction on High Income Countries
 - over \$2349 per capita income
 - now in Foreign Assist Appropriations Act
 - eliminates IMET for Austria, Finland, ROK, Singapore, Spain
- Other Restrictions
 - Indonesia
 - Zaire, Liberia
 - Sierra Leone ????
- "full exposure to how the U.S. military performs as a professional, highly respected institution in a civil, democratic society governed by the rule of law"
- Beware of TRADOC cuts
- NON-governmental workers can now attend E-IMET

Navy Security Assistance Programs

- PKO Course at NWC
- Mobile Education Teams - Center for Civil Mil Relations
- Masters Course at NPS
- Senior Course at NPS
 - 2 week on civil military relations
- Dept of Navy Collaborative Efforts
 - \$1.6 billion in collaborative R&D

Excess Defense Articles (EDA)

- President is authorized to transfer EDA on a grant basis
- Must be preferable to sale
- Non-interference with industry
- Priority to NATO and major non-NATO allies
- No cost transportation of EDA is authorized

Security Assistance Components "Non-Standard"

- Military to Military cooperation
- Mil-to-Mil relations
- JCS Exercises
- MEDCAP, MEDRETE, MEDFLAG
- Exercise Related Construction

***Briefing: The Threat in 2012 to U.S. Interests in Northeast
Asia Following Korean Reunification***

Major David Johnston

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The Threat in 2012 to U.S. Interests in Northeast Asia Following Korean Reunification

Major David Johnston USAFR
Study for Air Staff, Plans (AF/XOOX)

U.S. Interests for the past two centuries

- Peace and Security
- Commercial Access to the Region
- Freedom of Navigation
- Prevent the Rise of a Hegemonic Power or Coalition

On December 11th [1996], the outgoing director of America's Central Intelligence Agency, John Deutch, told the Senate intelligence committee that within the next two or three years, North Korea will either make war, make peace, or implode. Not even he... was prepared to lay a bet on which it will be.

The Economist, 22 February 1997

Four Categories of Resolution

- Implosion
- Confederation
- Separate Trading Partners
- War

Present is Prologue

- Northeast Region: North Korea, South Korea, Japan, China, Russia, and the United States
- North Korea
 - Work centers provide: food, clothes, wages, family
 - Starvation, lack of fuel, economy down 75%
- South Korea
 - Since the 1988 Olympics...
 - Growth, change, stagnation

Present

- Japan
 - Stagnation
 - Threat and fear
- China
 - Growing hegemon
 - Regional "leader"
- Russia -- crippled
- United States -- rebounding and advancing

Key Military Hardware

	N. KOREA	S. KOREA	JAPAN	CHINA	RUSSIA*
ICBM/MRBM	***	-	***	90.00	800.00
Tanks	3,400.00	2,060.00	1,130.00	5,500.00	5,800.00
Field Artillery	10,200.00	5,000.00	870.00	18,000.00	5,800.00
Submarines	25.00	4.00	17.00	62.00	43.00
Cruisers	-	-	-	-	4.00
Destroyers	-	7.00	9.00	13.00	7.00
Frigates	3.00	33.00	51.00	36.00	34.00
Fighters	520.00	480.00	310.00	5,000.00	500.00
Bombers	82.00	-	-	436.00	125.00

* Except for ICBM/MRBM, numbers are author's estimates for Far East Military District only, derivation required because military services have overlapping geographic responsibilities

** No-dong deemed operational; Teepo-dong still in development

*** Japan operates a commercial space launch program separate from the military

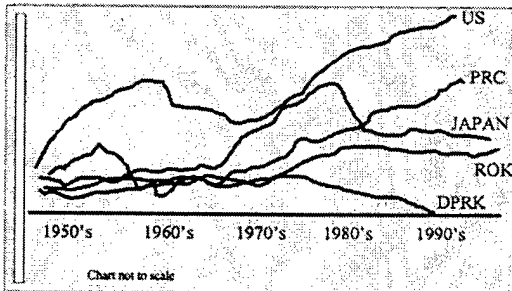
Source: Military Balance 1996-97

Aging World Population

Country/ Region	Percent 65 and older 1996	2020	Rate of Increase 1997
North Korea	< 5	10 - 14	1.8 - 2.5
South Korea	5 - 9	10 - 14	0.9 - 1.7
Japan	10 - 14	> 20	0.1 - 0.8
China	5 - 9	10 - 14	0.9 - 1.7
Russia	10 - 14	15 - 19	0.1 - 0.8
United States	5 - 9	15 - 19	0.1 - 0.8
ASEAN	< 5	5 - 9	1.8 - 2.5

Source: World Health Organization (1997) and Hammond Atlas of the World (1997)

The Historical Waves



General Trends in the Year 2012

- Korea will be stabilized and growing
- Japan will be in the midst of an economic upswing
- China will be struggling with a stalled economy
- Russia will be highly focused on Europe
- The U.S. will be struggling to maintain its world dominance

The Threat

- Growth of Chinese Military/Economic Power
- Conflict Among U.S. Allies
- Trouble in the Middle East
- Trouble in Southeast Asia

***Briefing: Space Operations for the 21st Century: A
Functional Approach***

Major David R. Levy

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*Space Operations for the 21st Century
A Functional Approach*

Major David R. Levy, USAF
ACSC Class 97

presented to: USAF INSS
USAF Academy
13 November 1997

author's address:
CMOC/J3CS-B
CMAS, CO 80914-6033
DSN 268-4401

Thesis

A single, centralized military space agency is most effective & efficient approach for organizing space operations

- Present Air Force doctrine & approach is flawed:
 - air & space are a "continuum"; same principles apply
 - can smoothly transition from air & space force to space & air force
- Present space organization approach is convoluted

Motivation

- Dwindling resources/downsizing
- Increasing importance of space
- Rapidly changing technology
- Warfighter concerns for responsiveness
- Emerging mission areas:
 - Ballistic missile defense
 - Space control
 - Force projection from space?

Types of Doctrine (Drew & Snow)

- Fundamental
- Environmental
- Organizational

Present Air Force space doctrine appears organizationally derived to keep air and space together

Present Air Force Doctrine

- AFM 1-1 (Mar 92):
 - aerospace is a "continuum" that "begins at the earth's surface and extends upward toward infinity"
 - Elevation provides potential energy and observational advantages of the high ground
 - trying to separate air and space is "equivalent to saying that submarines and surface ships should be in separate force structures"

Summary of AFM 1-1

- | | |
|---|--|
| ● Characteristics of Aerospace Systems: | ● Tenets of Aerospace Power: |
| <ul style="list-style-type: none">- Speed- Range- Flexibility | <ul style="list-style-type: none">- Centralized control/decentralized execution- Flexibility/versatility- Priority- Synergy- Balance- Concentration- Persistence |
| ● Advantages of the vertical dimension: | |
| <ul style="list-style-type: none">- Perspective- Speed- Range- Maneuvability | |

Summary of AFM 1-1

- Characteristics of Aerospace Systems:
 - Speed
 - Range
 - Flexibility
- Advantages of the vertical dimension:
 - Perspective
 - Speed
 - Range
 - Maneuverability
- Tenets of Aerospace Power:
 - Centralized control/decentralized execution
 - Flexibility/versatility
 - Priority
 - Synergy
 - Balance
 - Concentration
 - Persistence

AFDD-4 (draft 10 Jul 96) Space Operations Doctrine

- Attributes of space power
 - Global coverage
 - Flexibility
 - Economy
 - Effectiveness
 - Robustness

Joint Pub 3-14 (draft 15 April 92) Jt. Doctrine TTP for Space Operations

- "space as a unique operating medium"
- "the ultimate objective of space operations is the effective employment of space capabilities *in support of land, sea and air operations...*"
- Attributes of space environment:
 - extent
 - vantage
 - gravity
 - composition
 - radiation
 - temperature
 - propagation

Some reality

- Space operations ≠ air operations
- Differences:
 - Environmental:
 - long ranges
 - radiation propagation
 - weightlessness
 - vacuum
 - Technological
 - complex & costly for launch & long life
 - operational control demanding
 - fragile
 - Operational
 - orbital mechanics
 - maneuver costs
 - limited reconfig.
 - Political
 - open skies
 - sanctuary (to date)
 - becoming congested

Suggested doctrine

- Space attributes
 - direct vantage
 - global access
 - endurance
 - synchronization
- Employment considerations
 - Protection
 - Standardization
 - Centralized space control

Future trends

- Lots of studies:
 - Spacecast 2020
 - New World Vistas
 - Air Force 2025
- Basic points
 - greater US reliance on space
 - exploding proliferation of space systems
 - microminiaturization
 - lower access costs to space

Spacecast 2020 Top Systems

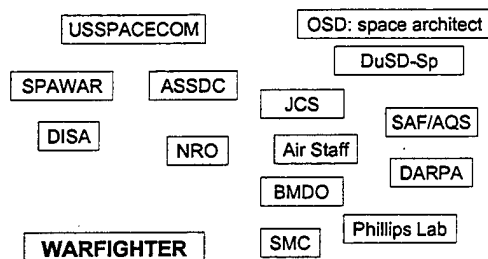
- | | |
|---------------------------------------|---------------------------------------|
| 1. Refueled Trans-Atm Veh (TAV) | 12. Sp-based High Energy Laser System |
| 2. Orbital Transfer Vehicle (OTV) | |
| 3. Orbital Maneuvering Veh (OMV) | 13. Kinetic Energy Weapon Sys |
| 4. Space Modular Systems | 14. High Powered Microwave Sys |
| 5. Global Surv., Recon & Tgt Sys | 15. Particle Beam Weapon Sys |
| 6. Super Global Positioning Sys | 16. Weather C3 System |
| 7. Space Traffic Control System | 17. Solar Mirror System |
| 8. Weather Forecasting System | 18. Asteroid Detection System |
| 9. Sp-based Solar Mon & Alert Sat Sys | 19. Asteroid Negation System |
| 10. Ionospheric Forecast Sys | |
| 11. Holographic Projector | |

yellow - spacelift (1-4)
green- force enhancement (5,6,8,16,17)
white - on-orbit support (7,9,10,18)
blue - space weapons (11-15,19)

Implications for space operations

- | | |
|---|---|
| ● Trend | ● Implication |
| - Space traffic control, debris track & arbitration will increase in importance | - Need central authority to coordinate/arbitrate |
| - Space attacks even more likely | - need space defense system |
| - Force enhancement systems will proliferate, micromin. | - No longer centrally control force enhancement msn |
| - Enemy to rely more on space | - need space attack system |

Present space organization



Who is leading AF efforts in space?

AF flag officers
by first career area
as of Feb 97

Conclusions

- Space is different from air, needs own doctrine
- A "spacemindedness" is important to best exploit space medium
- Space field is best run by space people
 - like ships run by seamen, air wings by pilots, missile wings by missileers
 - need agency to protect career paths of space warriors

Recommendations

- Consolidate multitude of space agencies into single organization
 - fosters development of doctrine & career paths
 - could evolve into own service
 - mission operations focus on space control & projection (eg, BMD) missions
- Relinquish space ops control of certain force enhancement missions to users (eg, regional CINCs); retain only "high value" systems
- Get military out of space launch business - allow users to purchase the services

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***Briefing: Spent Fuel and International Cooperation: What
to do About Decommissioned Russian Nuclear Submarines?***

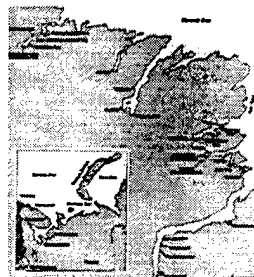
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SPENT FUEL AND INTERNATIONAL COOPERATION:

What to do About Decommissioned Russian Nuclear Submarines?



NORTHWEST RUSSIA HOME OF RUSSIA'S NORTHERN FLEET

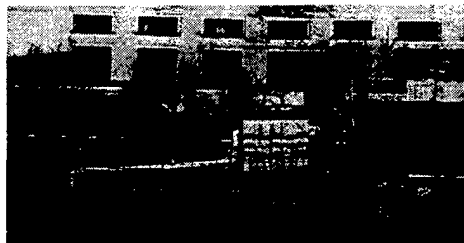


UNINTENDED CONSEQUENCE

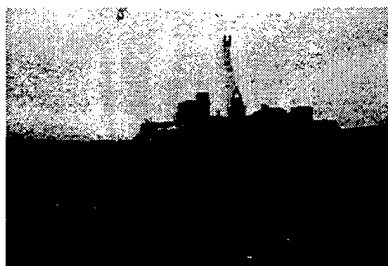
- OVER 100 RUSSIAN NUCLEAR SUBMARINES WILL REQUIRE DEFUELING
- EACH SUBMARINE HAS TWO REACTORS



SUBMARINE DEFUELING



SUBMARINE DISMANTLEMENT

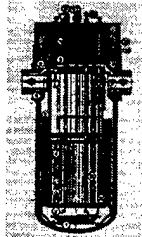


REACTOR COMPARTMENT FLOTATION

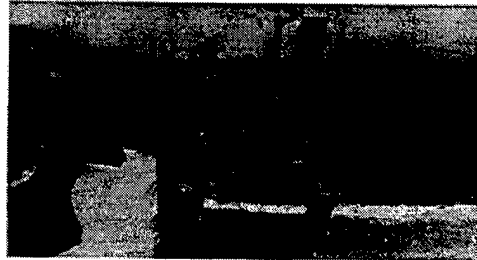


SPENT FUEL ASSEMBLIES

- URANIUM ALLOY IN A THIN CLADDING
- TWO-THREE FEET LONG
- TWO-THREE INCHES SQUARE
- EACH WITH 1000 CURIES
- 250 FUEL ASSEMBLIES PER REACTOR
- 50,000 REMAIN ON SUBMARINES
- 30,000 REMOVED AND IN HAZARDOUS STORAGE



SPENT FUEL DRY STORAGE ANDREEVA BAY



SPENT FUEL OUTDOOR STORAGE ANDREEVA BAY

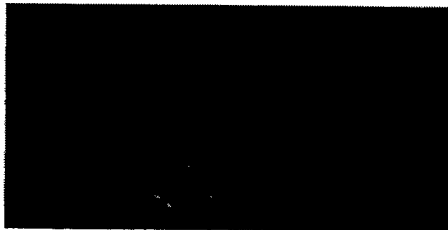


WHY SO LITTLE PROGRESS?

- TECHNICAL DIFFICULTIES
- NOT ENOUGH FUNDING
- CONFUSED LINES OF AUTHORITY
- YELTSIN GOVERNMENT PRIORITIES

RUSSIAN NAVY PRIORITIES

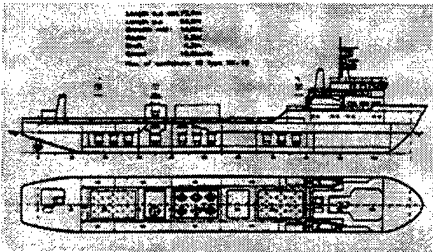
- OPERATIONS AND NEW CONSTRUCTION
- SECURITY AND AVOID PUBLIC CRITICISM



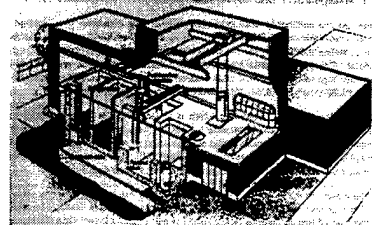
THE DEFUELING CHAIN

- DEFUELING SHIPS
- INTERIM STORAGE
- TRANSPORT TO MAYAK
- REPROCESSING AND PERMANENT STORAGE

DEFUELING SHIPS



INTERIM STORAGE



TRANSPORT TO MAYAK



MAYAK/ CHELYABINSK REPROCESSING FACILITY



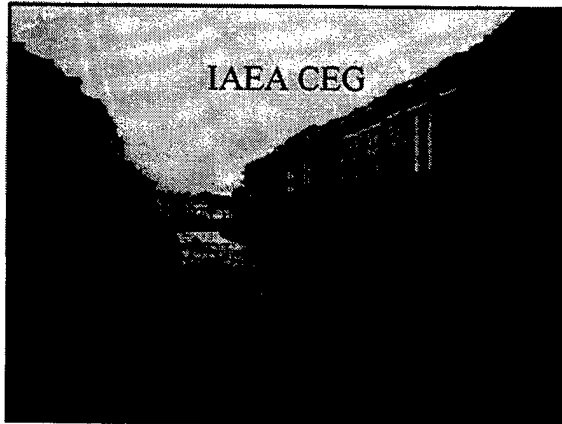
PERMANENT STORAGE



BARENTS COUNCIL



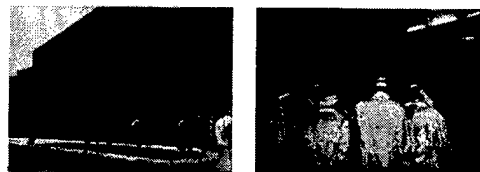
IAEA CEG



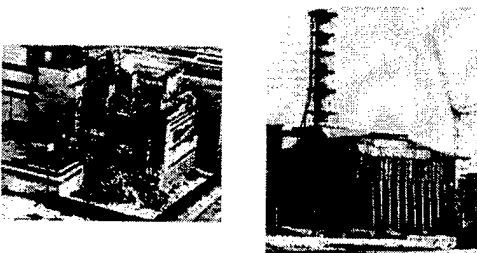
PROBLEMS WITH COOPERATION

- POLITICAL CONCERNS
- TAXATION
- LIABILITY
- PREVIOUS RUSSIAN COMMITMENTS NOT FULFILLED
- OTHER NUCLEAR PRIORITIES

RUSSIAN CIVILIAN REACTOR SAFETY



CHERNOBYL LEGACY



LEPSE PROJECT

- 634 ICEBREAKER FUEL ASSEMBLIES
- 750,000 CURIES
- EU, FRANCE, NORWAY INITIATIVE



SOLID AND LIQUID RADIOACTIVE WASTE



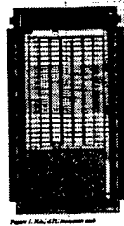
US INVOLVEMENT

- MURMANSK TRILATERAL INITIATIVE



ARCTIC MILITARY ENVIRONMENTAL COOPERATION (AMEC)

- SPENT FUEL CONTAINERS
- LIQUID WASTE TECHNOLOGIES
- SOLID WASTE TREATMENT
- SOLID WASTE TECHNOLOGIES
- TRAINING



A CRISIS?

- NUCLEAR FALLOUT AND CHERNOBYL -- NOT SPENT FUEL -- ARE MAIN SOURCES OF ARCTIC REGION CONTAMINATION
- RUSSIAN REACTORS DUMPED IN THE ARCTIC HAVE NOT CAUSED SIGNIFICANT CONTAMINATION
- RUSSIAN SPENT FUEL IS NOT A MAJOR THREAT TO CONTINENTAL US
- BUT -- SIGNIFICANT RISK OF LOCALIZED AND ARCTIC OCEAN CONTAMINATION

WHY BE INVOLVED?

- CONTAMINATION COULD BE WIDESPREAD AND LASTING
- CHANCE TO TEST TECHNOLOGIES
- US COMPANIES COULD PROFIT
- COOPERATION FOR THE SAKE OF COOPERATION -- AN OPPORTUNITY TO ENGAGE WITH RUSSIA AND TO MAKE A DIFFERENCE

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Briefing: 5th Annual Research Results Conference

Lieutenant Colonel Pete Hays

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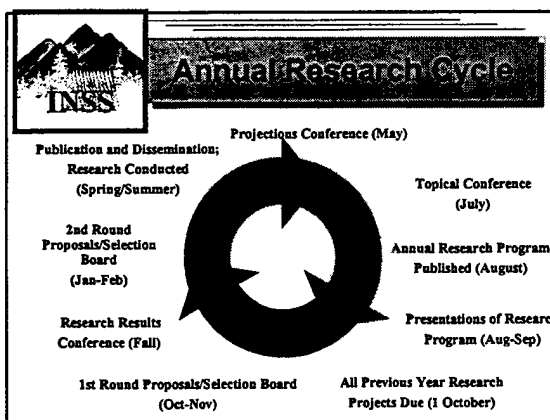
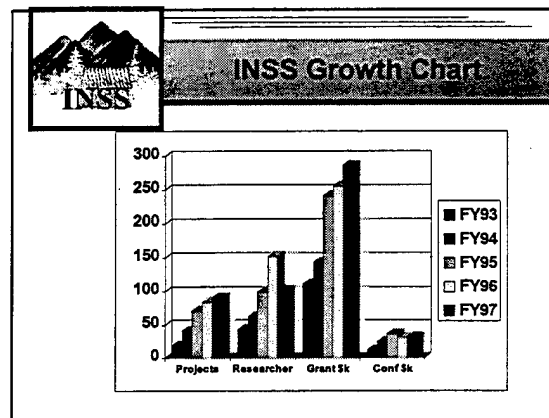
**Institute for National
Security Studies**

Mission: To promote national security research for the Department of Defense within the military academic community, and to support the Air Force national security education program.

Vision: Be the institute of choice for promoting, coordinating, and disseminating vital national security research that influences DOD policy development.

About INSS

- Since 1992, INSS has spent more than \$1.1 Million to help almost 500 volunteer researchers complete more than 300 projects.
- Current INSS Sponsors include the XONP and XOI on the Air Staff, OSD Net Assessment, On-Site Inspection Agency, Defense Special Weapons Agency, and Army Environmental Policy Institute
- INSS Staff has Published 16 *Occasional Papers* and Edited three books:
 - *Arms Control Toward the 21st Century*
 - *American Defense Policy*
 - *Countering Proliferation and Use of Weapons of Mass Destruction* (forthcoming)



**Selection Committee
Round One**

- Four Conferences and 100 Proposals Submitted
- Over \$600,000 Requested
- 10 Member Committee
- 67 Projects Selected for Funding
- \$180,000 Allocated



Results Conference

- 10 Panels over two days
Arms Control; Counterproliferation; Space Policy; Air Force Policy; Information Warfare; Regional Security: Asia, Russia, Africa, NATO; Environmental Security
Over 100 Participants
- 32 Papers and 37 Presenters
22 USAF, 10 Civilian, 3 USA, 2 USN, 1 USMC
- 12 Organizations: 9 USAFA, 5 ACSC, 2 AWC, 4 NPS, 3 JMIC, 2 AFSPC, 1 USMA, 4 NDF, 2 FMSSO, 2 USAWC, 1 NWC, 1 AFIT, 1 ICAF



Conference Logistics

- Change in Banquet Location
Cactus Rose not New South Wales
- Count of those not attending Panel 1
- Phones: (719) 333-4455 and 7098; DSN 333
- Fax: (719) 333-2716
- Bathrooms: Out back, left around store then on left; 2nd set South of L-5
- Sports: 9-2 Falcons v. Wyoming, 1200 Sat; Hockey v. St. Mary's, 1930 Fri and Sat



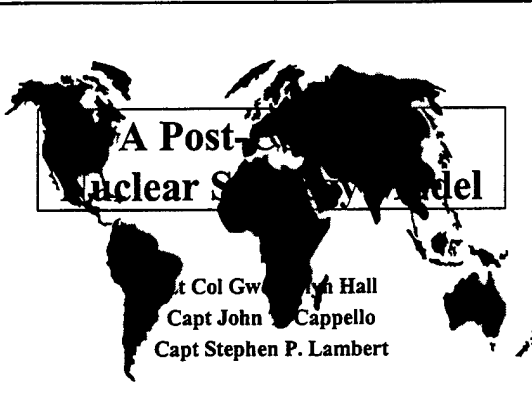
Thank You

INSS Deputy Director: Maj Vince Jodoin
SAIC Support: Stan Kowalski, Jen Williams, Sam Taylor
INSS NDF: Lt Col Guy Walsh
INSS Budget Assistant: Diana Heerdt

Briefing: A Post-Cold War Nuclear Strategy Model

**Lieutenant Colonel Gweyndolyn Hall
Captain John T. Cappello
Captain Stephen P. Lambert**

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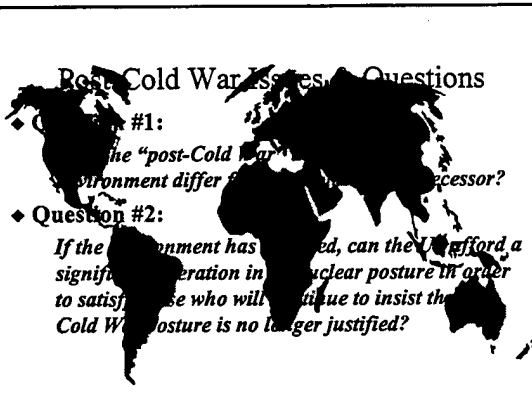
A Post-Cold War Nuclear Strategy Model

Lt Col Gwyneth Hall
 Capt John J. Cappello
 Capt Stephen P. Lambert



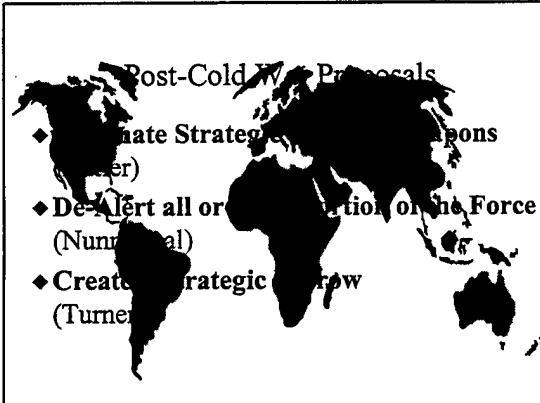
Overview of Post-Cold War Issues and Questions

- ◆ Proposals Do Not Address the Current Debate
- ◆ American Perspectives
- ◆ The Russian Situation
- ◆ Conclusions



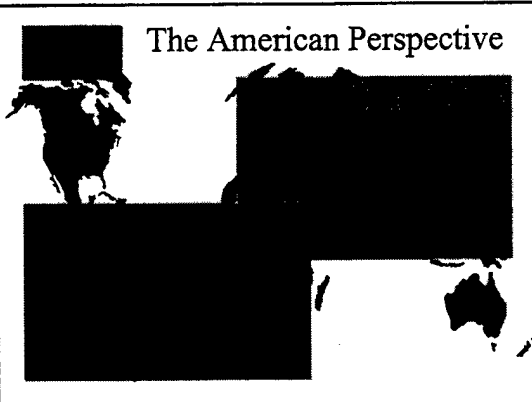
Post-Cold War Issues and Questions

- ◆ Question #1:
Can the "post-Cold War" environment differ from the Cold War environment?
- ◆ Question #2:
If the environment has changed, can the US afford a significant reduction in nuclear posture in order to satisfy those who will continue to insist the Cold War posture is no longer justified?



Post-Cold War Proposals

- ◆ Eliminate Strategic Nuclear Weapons (Turner)
- ◆ De-Alert all or portion of the Force (Nunn)
- ◆ Create a Strategic Grow (Turner)



The American Perspective



The American Perspective (cont)

- ◆ Feasibility
- ◆ Utility
- ◆ Defense
- ◆ Verification
- ◆ De-alerting

The American Perspective (cont)

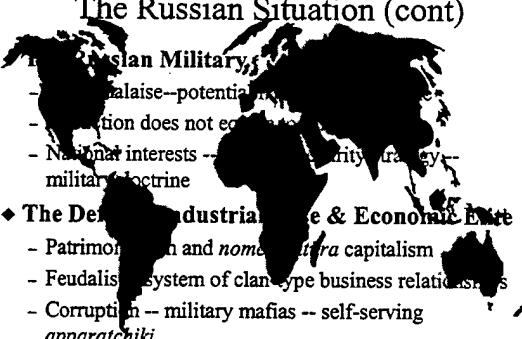


S : Security
SQ: Status Quo

The Russian Situation

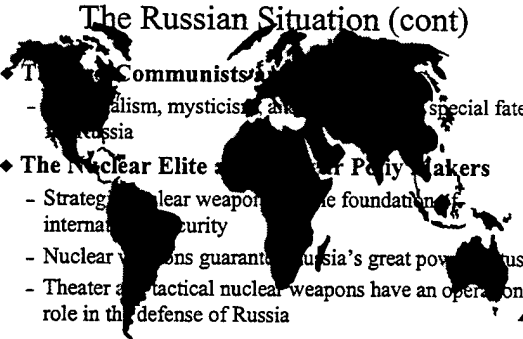


The Russian Situation (cont)



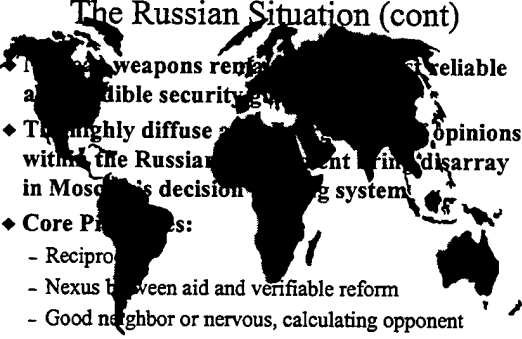
- Russian Military
 - Realism--potential
 - Tradition does not equal reality
 - National interests -- security strategy -- military doctrine
- ◆ The Domestic Situation & Economic State
 - Patrimonialism and *nomads* *ultra* capitalism
 - Feudalist system of clan-type business relationships
 - Corruption -- military mafias -- self-serving *apparatchiki*

The Russian Situation (cont)



- Russian Communists
 - Realism, mysticism, and special fate of Russia
- ◆ The Nuclear Elite & the Policy Makers
 - Strategic nuclear weapons as the foundation of international security
 - Nuclear weapons guarantee Russia's great power status
 - Theater and tactical nuclear weapons have an operational role in the defense of Russia

The Russian Situation (cont)

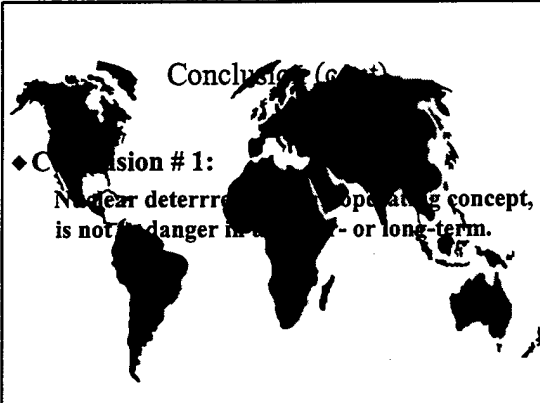


- ◆ The Russian weapons remain unreliable and provide no credible security guarantee
- ◆ The highly diffuse and conflicting opinions within the Russian government and disarray in Moscow's decision-making system
- ◆ Core Problems:
 - Reciprocity
 - Nexus between aid and verifiable reform
 - Good neighbor or nervous, calculating opponent

Conclusion

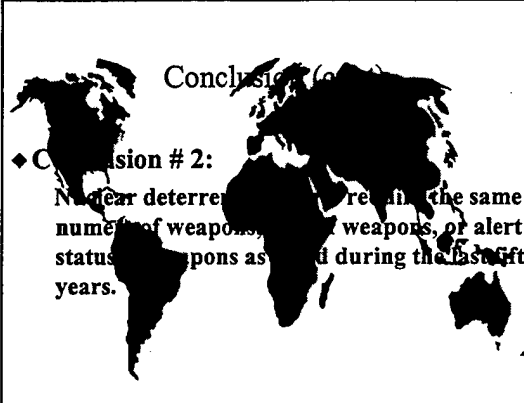


Conclusion (cont.)



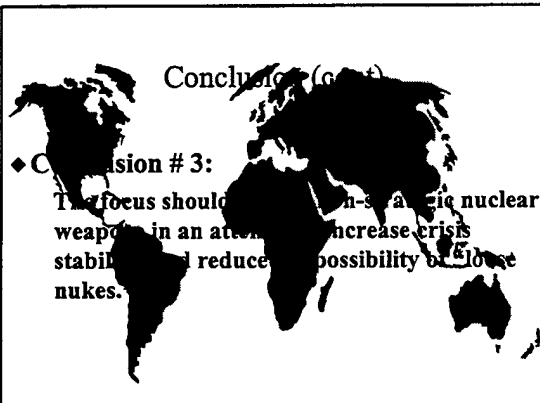
◆ Conclusion # 1:
Nuclear deterrence as a operating concept, is not in danger in short- or long-term.

Conclusion (cont.)



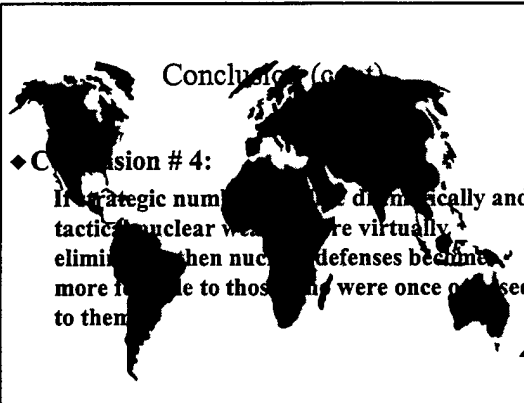
◆ Conclusion # 2:
Nuclear deterrence will remain the same number of weapons, or weapons, or alert status of weapons as during the last fifty years.

Conclusion (cont.)



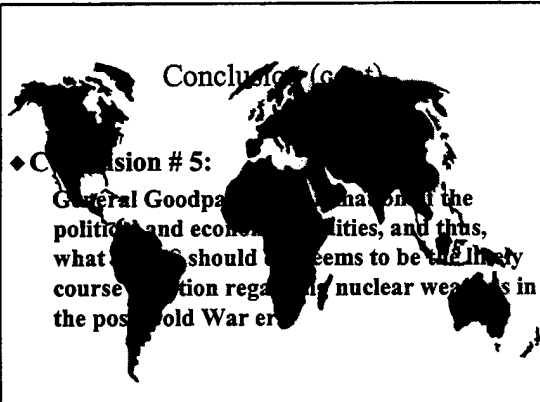
◆ Conclusion # 3:
The focus should be on strategic nuclear weapons in an attempt to increase crisis stability and reduce the possibility of loose nukes.

Conclusion (cont.)



◆ Conclusion # 4:
If strategic nuclear weapons are dramatically and tactical nuclear weapons are virtually eliminated, then nuclear defenses become more realistic to those who were once opposed to them.

Conclusion (cont.)

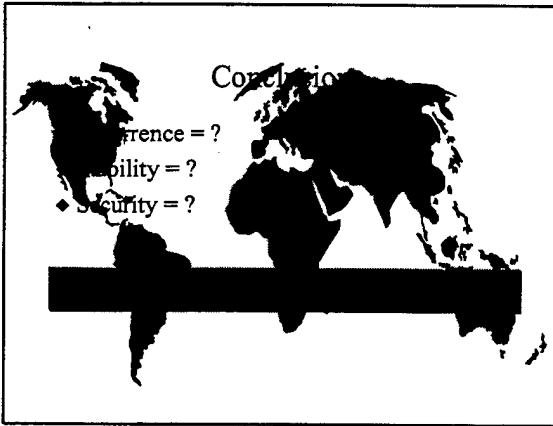


◆ Conclusion # 5:
General Goodpastor's opinion of the political and economic realities, and thus, what the US should do seems to be the likely course of action regarding nuclear weapons in the post-Cold War era.

Conclusion (cont.)



- ◆ Elimination of most nukes is realistic
- ◆ Elimination of all nukes is well beyond our grasp
- ◆ Ten years or more will be needed to dismantle the weapons already marked for elimination
- ◆ See how the world security environment develops, making sure that the US nuclear arsenal is safe, reliable, and adequate.



Briefing: Issues on the Arms Control Horizon

Captain Bill Casebeer

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ISSUES ON THE ARMS CONTROL HORIZON

Capt Bill Casebeer
Dept. of Philosophy and Fine Arts
US Air Force Academy

THE ARMS CONTROL HORIZON

- Nascent technologies reaching fruition
- Potential to cause far-reaching and fundamental changes in arms control
- All stages of arms control affected
- RMA Vs. RACA
- Primary impact: radical transparency

PREVIEW

- Technology/Application/Concerns
- Virtual Reality & Immersive Simulation Technology
- Artificial Intelligence/Artificial Life
- Remote Sensing
- Transparency and the "Overview Effect"

VIRTUAL REALITY

- Totally immersive environment
 - Exponential increase in processing speeds and concomitant drop in price
 - Defense simulation market: \$2.5 billion/year
- More bang for the buck (Marine experience)
- Fully immersive 3-D VR systems--potential impact on all stages of arms control

VR AND ARMS CONTROL

- Problem recognition
 - Tufte: data is meaningless unless given context
 - VR: 3-D nature/ability to quickly capture change over time
 - Data must be seen rather than "tabulated"
- During Negotiations
 - Envisioning alternate futures
 - Abstract away from particulars
 - More frequent negotiations

VR AND ARMS CONTROL

- Implementation/Enforcement
 - Monitor compliance
 - Most effective in conjunction with other technologies
 - Initial transparency achieved in any case...

AI AND AL

- Artificial Intelligence
 - Boden: "...enable computers to...do the sorts of things that minds can do..."
 - Neural nets, algorithmic approach
 - Genetic programming
- Artificial Life
 - Study of life *in silico* with potential for physical realization
 - Moravec and Brooks--MIT and "fleabots"

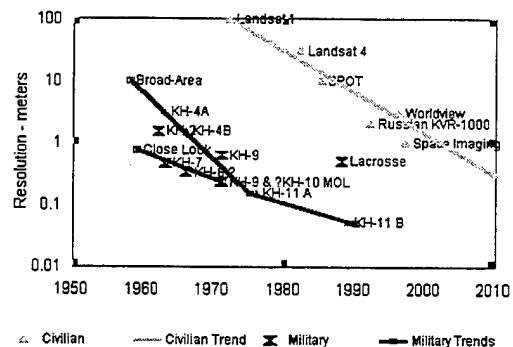
AI/AL AND ARMS CONTROL

- Policy formulation
 - Genetic algorithms: lateral thinkers by definition--open up "idea space"
- Treaty enforcement
 - Enforcement and monitoring inextricably linked
 - Size of steps taken at any given moment directly related to confidence level (Axelrod)
 - Automate enforcement and compliance
- Problem resolution
 - UNSCOM case study

REMOTE SENSING

- Formerly exclusive realm of first world governments, largely due to cost
- Trickle: SPOT...flood: Space Imaging, Orbimage, EarthWatch...
- Denver based EarthWatch: 3 meter resolution this year, 1 meter resolution next year
- Both groundtrack and TOT increasing
- Plans for multispectral capability

Optical Imaging Resolution



PUBLICLY AVAILABLE IMAGERY

- Space Imaging: 1 meter, 11 km swath
- Orbview: by 1999--1 meter, 8 km swath
- Earthwatch: Quickbird--1 m, 27 km swath
- Typical costs: from \$30 to \$300

REMOTE SENSING & ARMS CONTROL

- Open availability of high quality overhead imagery--radical transparency
- Disagreement about impact--in general, however, transparency good for stability
- Discourages defection, rewards cooperation
- Watchdog groups--FAS, etc.
- A new type of "transparency" made possible--public oversight

TRANSPARENCY

- Synergy generated by combination of three nascent technologies: VR, AI/AL, Remote Sensing
- Fundamental shift in world view--immersive virtual world, data linked with artificial agents, delivering near real-time overhead imagery, compliance partially automated and nearly certain, public participation
- Meta-transparency/the "overview effect"

REVIEW

- Technology/Application/Concerns
- Virtual Reality & Immersive Simulation Technology
- Artificial Intelligence/Artificial Life
- Remote Sensing
- Transparency and the "Overview Effect"

QUESTIONS?

ISSUES ON THE ARMS CONTROL HORIZON

Capt Bill Casebeer
Dept. of Philosophy and Fine Arts
US Air Force Academy

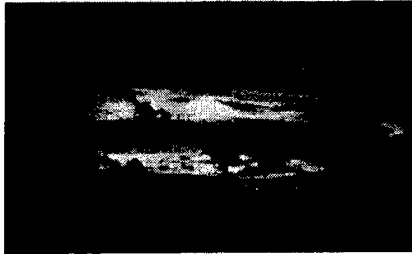
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***Briefing: Devising an Effective Arms Control Regime for
tracking, Monitoring, and Verifying the Elimination of
Nuclear Warheads***

Michael E. Dosier

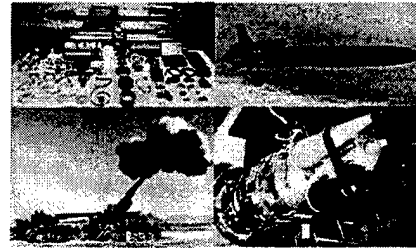
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Devising an Effective Arms Control Regime for Tracking, Monitoring, and Verifying the Elimination of Nuclear Warheads

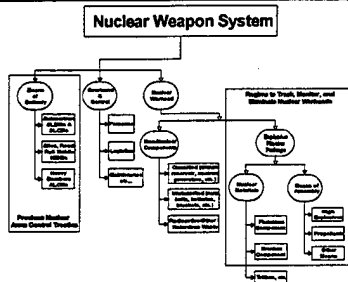


Michael E. Doster

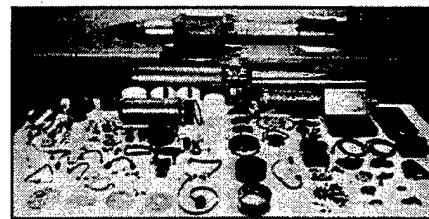
What Constitutes a Nuclear Warhead?



Treaty-limited Items Under a Nuclear Warhead Regime



Treaty-limited Items Under a Nuclear Warhead Regime cont.



- Nuclear warheads may contain several thousand components
- The B-61 Nuclear Bomb Pictured Above Has More Than 6,000 Components

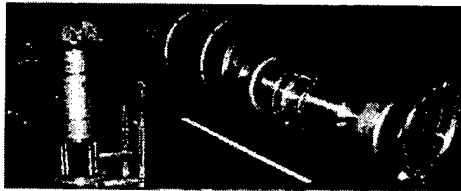
The Legacy of Recent Arms Control Treaties

- The INF Treaty
 - Short-Notice Inspections
- The START Treaty
 - Data Exchange & Continuous Declarations
 - Distinguishability inspections
- The Conventional Armed Forces In Europe Treaty
 - Challenge Inspections
- The Chemical Weapons Convention
 - Focus on confirming continued presence

Elements Necessary to a Warhead Regime

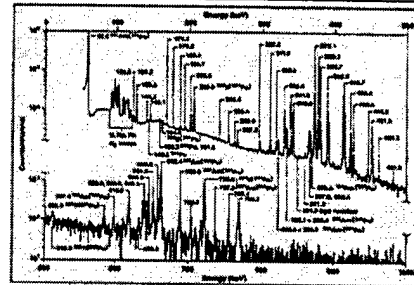
- A comprehensive exchange of data and continuous declarations of any changes to that data.
- An inspection regime to verify information provided by the parties.
- The verified dismantlement of nuclear warheads.
- The verified elimination of the plutonium pits.
- The establishment of, or use of an existing body to arbitrate disputes.

Verifying Components of Warheads



• AT400A Storage Container for Plutonium Components

Verifying Components of Warheads cont.



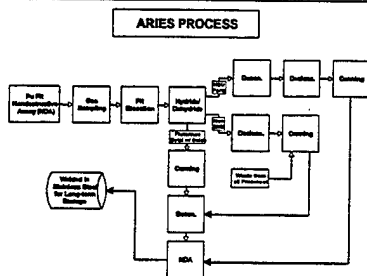
Tracking & Monitoring the Warheads



A Proposal For an Inspection Regime

- Distinguishability Exhibitions
- Baseline Data Inspections
- Closeout Inspections
- Short Notice Inspections
- Dismantlement and Elimination Inspections

Elimination of Nuclear Warheads



Concluding Comments

- The key to success in any warhead regime is going to be the amount of openness or transparency contained in its provisions, particularly concerning the exchange of data.
- Attempting to locate hidden warheads and components of warheads would be an impossible task.
- Confidence will be gained in a warhead regime with the continuous verification over time that the information provided by the inspected parties is consistent with reality.

***Briefing: The "Peace-Shield Partnership:" Prospects for
U.S.-Russian Collaboration on Ballistic Missile Defense***

**Captain Donald P. Lagator, Jr.
1st Lieutenant Brett L. Mers**

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The "Peace-Shield Partnership": Prospects for U.S. - Russian Collaboration on Ballistic Missile Defense

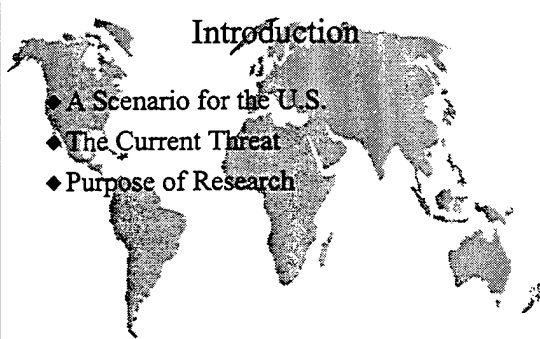
Capt Donald P. Lagator, Jr.
Falcon AFB, Colorado

1st Lt Brett L. Mers
Peterson AFB, Colorado



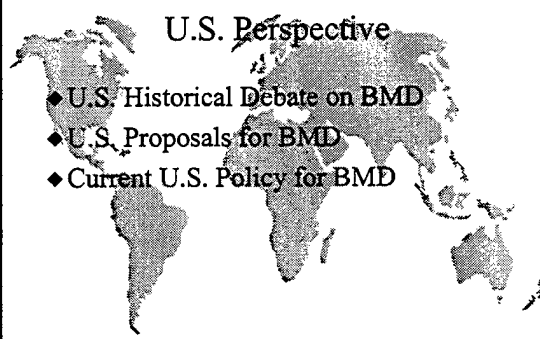
Overview

- ◆ Introduction
- ◆ U.S. Perspective
- ◆ Russian Perspective
- ◆ Concerns for Collaboration
- ◆ Conclusion



Introduction

- ◆ A Scenario for the U.S.
- ◆ The Current Threat
- ◆ Purpose of Research



U.S. Perspective

- ◆ U.S. Historical Debate on BMD
- ◆ U.S. Proposals for BMD
- ◆ Current U.S. Policy for BMD



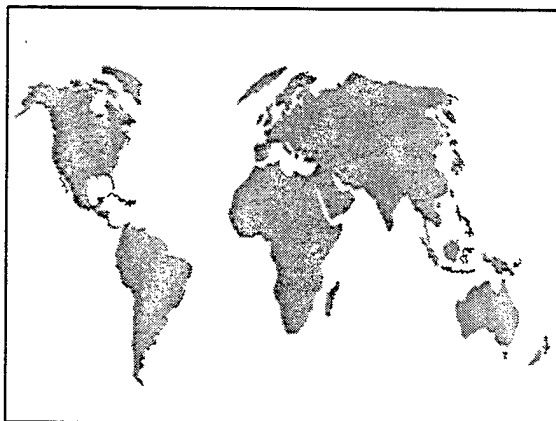
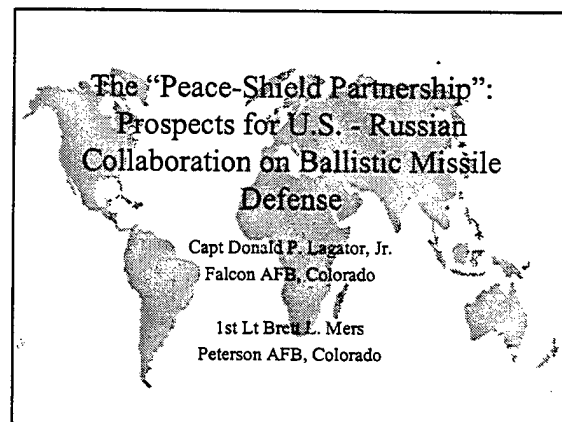
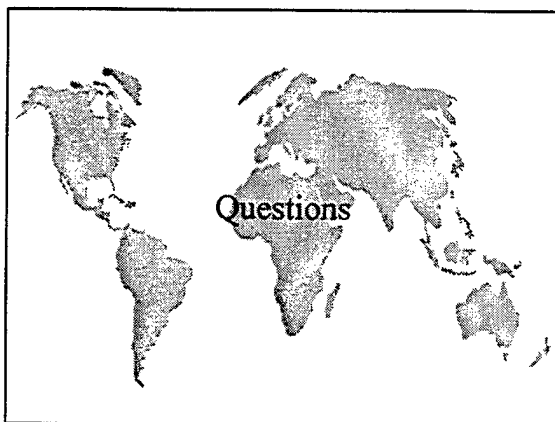
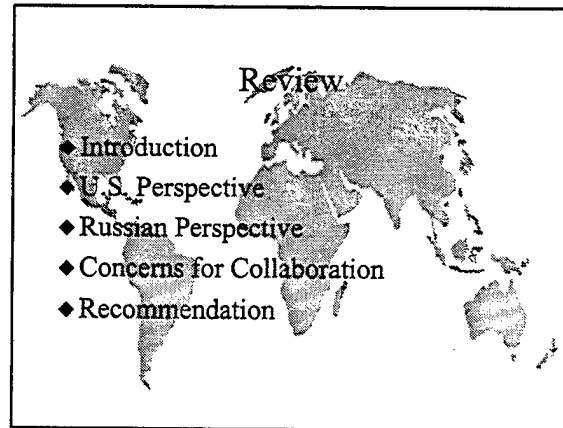
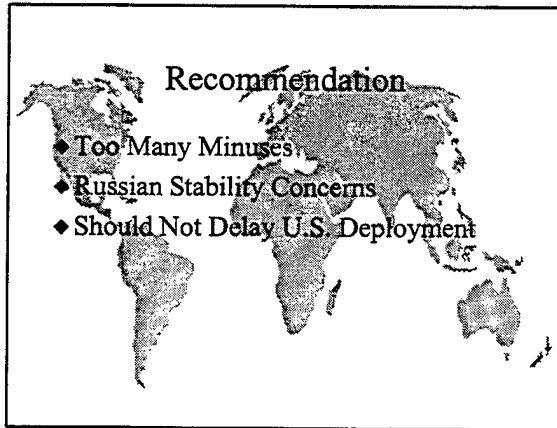
Russian Perspective

- ◆ Russian Historical Debate on BMD
- ◆ Russian Proposals for BMD
- ◆ Current Russian Policy for BMD



Concerns for Collaboration

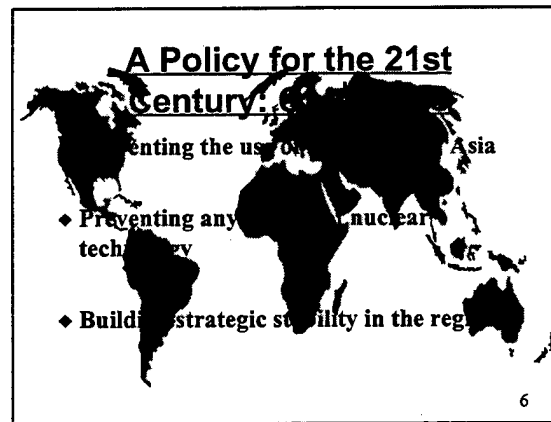
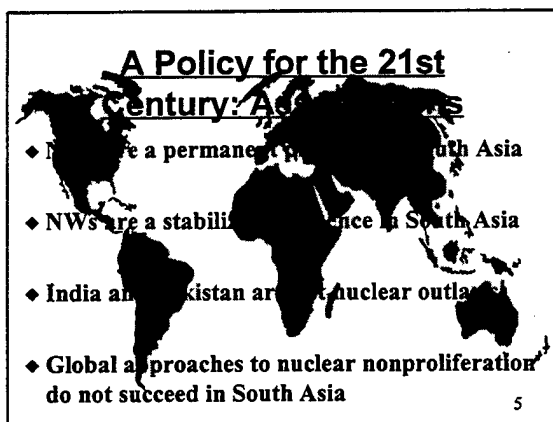
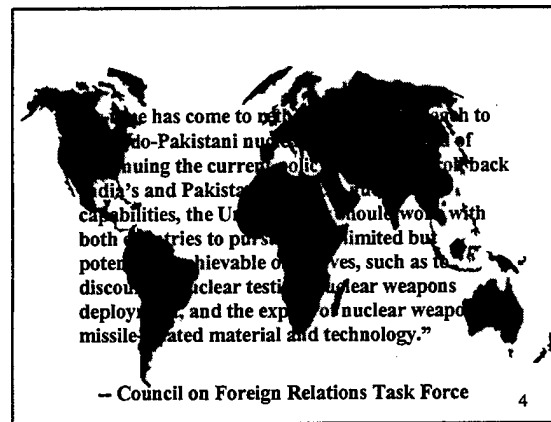
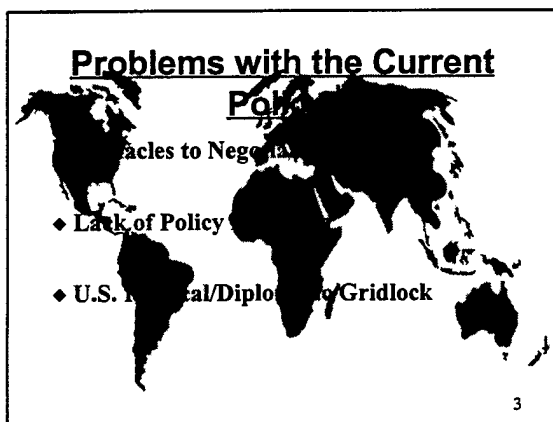
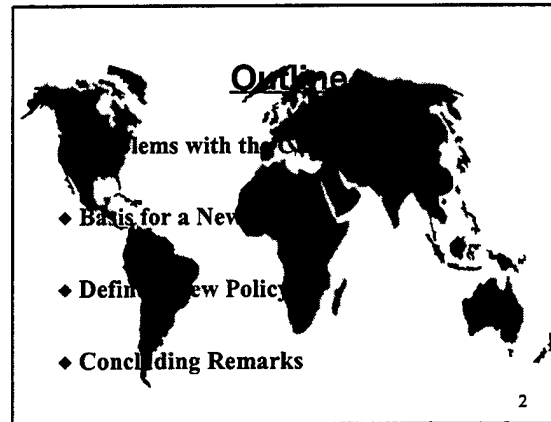
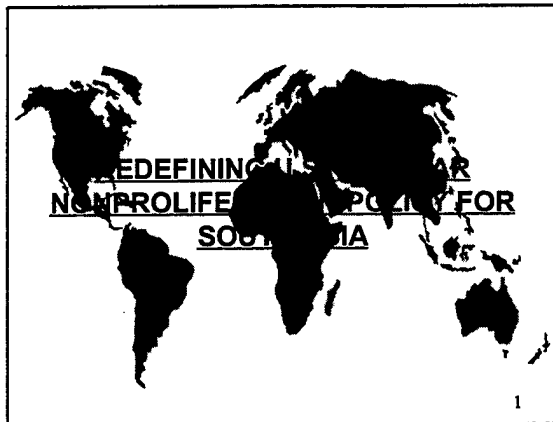
- ◆ Dangers from Russia's Strategic Arsenal
- ◆ Launch on Warning Policy
- ◆ Collapse of Missile Warning System
- ◆ Third Party Compromise
- ◆ U.S. Resolve for BMD



***Briefing: Redefining U.S. Nuclear Non-Proliferation Policy
for South Asia***

Major Martin Wotjysiak

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A Regional Nonproliferation Regime

- ◆ Initial Framework for a Joint Commission
- ◆ India and Pakistan Bilateral Agreements
- ◆ U.S. Assurances

7

Bilateral Agreements

- ◆ Mutual No-Nuclear Threats
- ◆ Normal No-Transfer
- ◆ Development of a Mutual C.M.M.
- ◆ Nuclear "Overt-ne"
- ◆ Cap on Missile Manufacturing/Production
- ◆ A Continuing Framework of Talks

8

U.S. Assurances

- ◆ Secure Nuclear Assets
- ◆ Secure NW Tech
- ◆ Development of
- ◆ NW Demand and Control
- ◆ Safety of the Commercial Nuclear Sector
- ◆ Regional Regime Transplaces Nonproliferation Legislation

9

Additional Considerations

- ◆ U.S. Offer on U.S. Offensive Capabilities to the Middle East Region
- ◆ Sharing Basic ABM Technology

10

Conclusion

- ◆ Dangerous Question
- ◆ A Catalyst on the Region?

11

"...for post proliferation... have to be tailored to the specific interests and... each region while at the same time the effect on the global regime will have to be considered."

— Joseph Nye

12

***Briefing: Defending Technology: The Vulnerability of our
Space-and Ground-Based Satellite Systems to Attack***

Captain Robert Klingseisen

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DEFENDING TECHNOLOGY

THE VULNERABILITY OF OUR
SPACE- AND GROUND-BASED
SATELLITE SYSTEMS TO
ATTACK

by

CPT ROBERT E. KLINGSEISEN



Topics of Discussion

- What's out there to be vulnerable?
- By what means can these vulnerabilities be exploited?
- What forms of exploitation can be used to achieve the means?
- What can we do to counter these threats?
- The future.

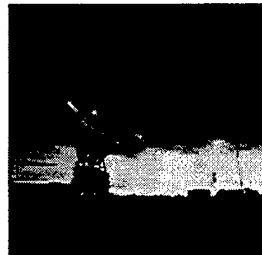


What's out there? (Space-based)

- Earth Resource Satellites.
- Communications Satellites.
- Position/Navigation Satellites.
- Meteorological Satellites.



Earth Resource Satellites

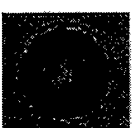


Source: NASA/ESA



Communications

- Globalstar
- Iridium
- Teledesic


Source: NASA

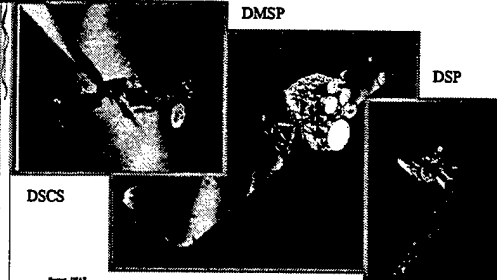
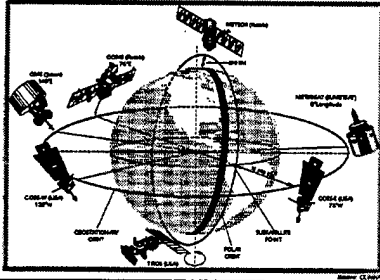


Positioning/Navigation

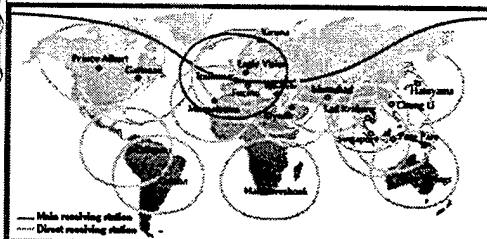
- GPS
- Glonass
- GNSS

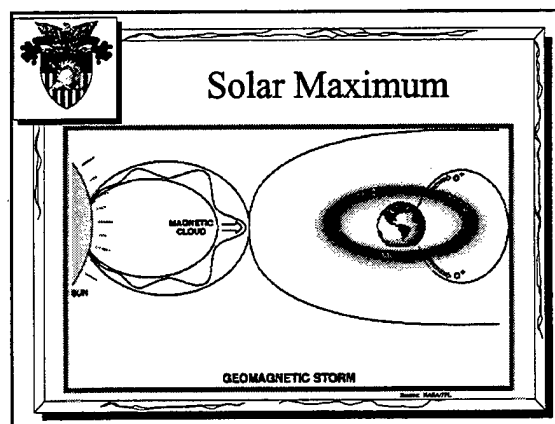
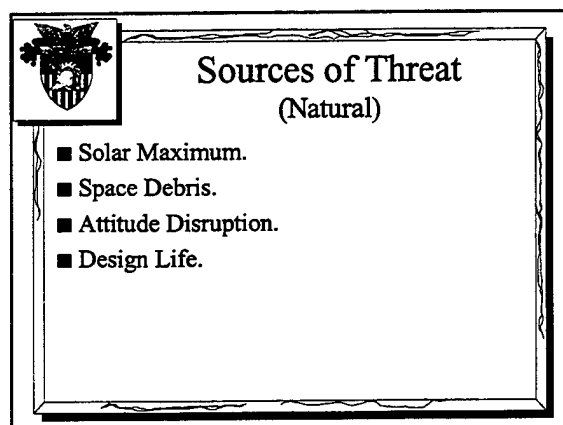
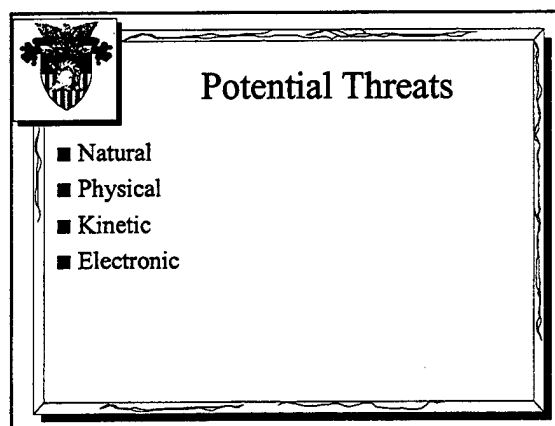
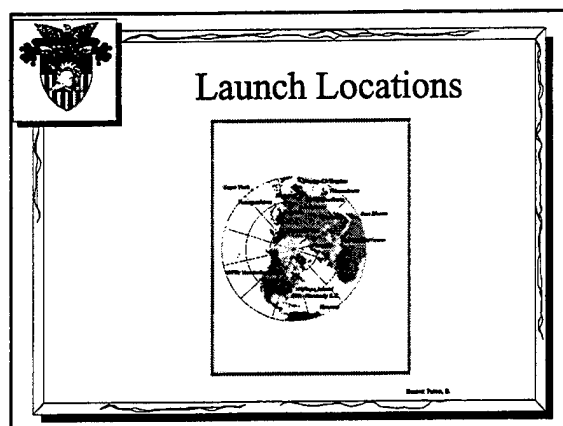
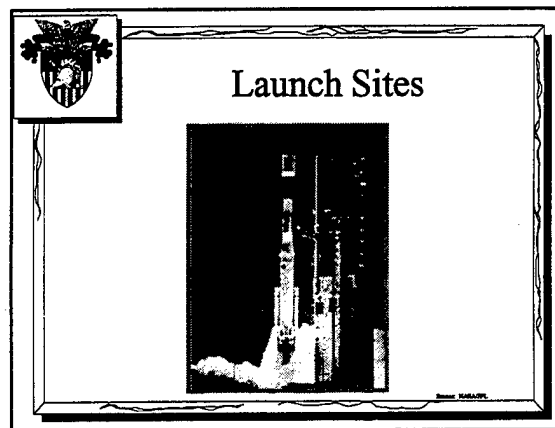
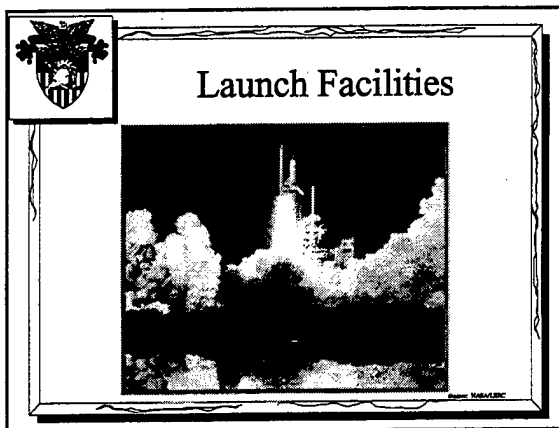


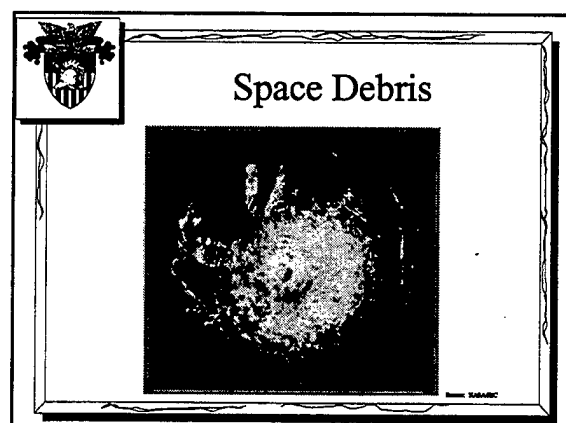
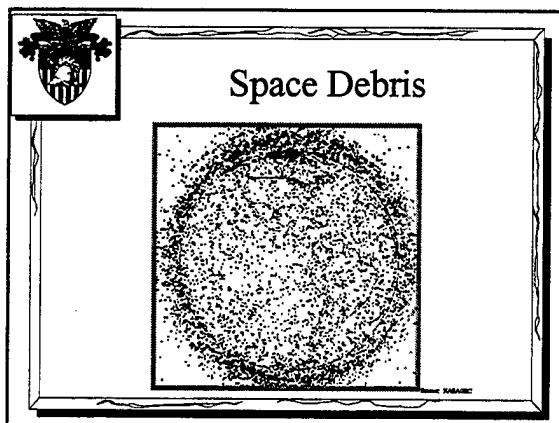
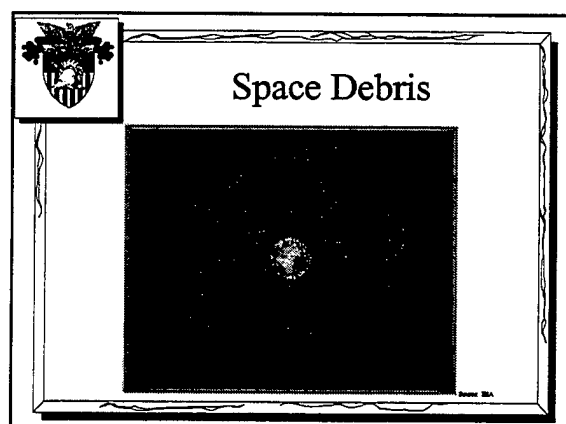
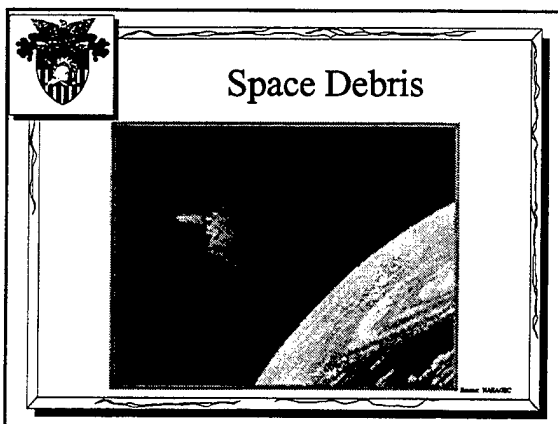
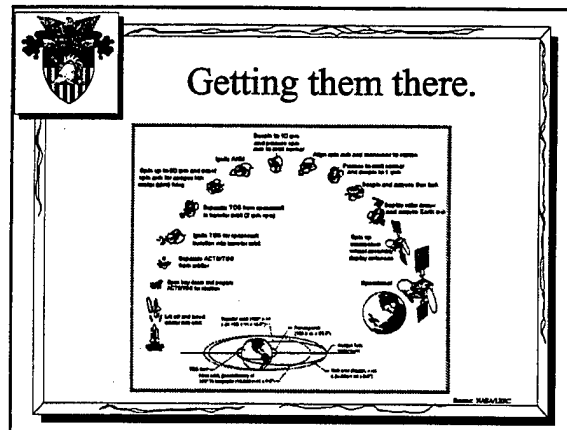
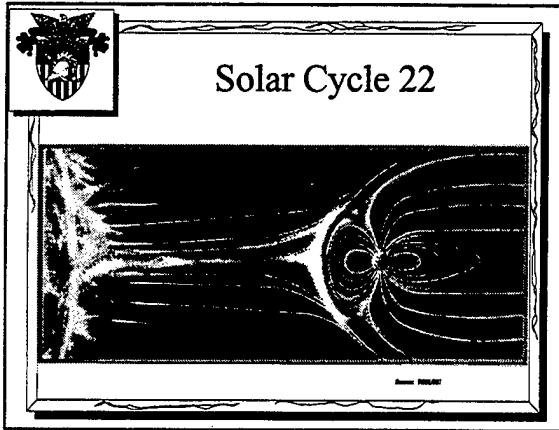

Source: NASA/ESA 1993

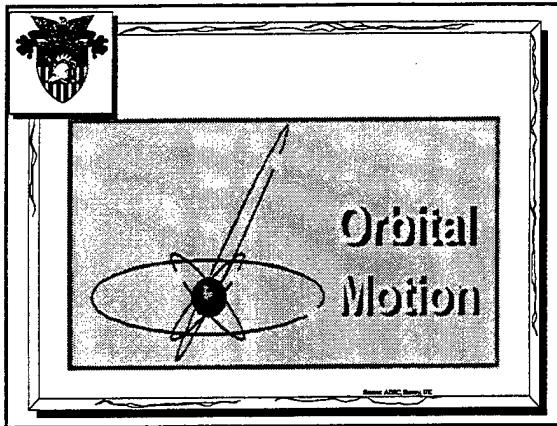


- 
- ## What's out there?
- (Ground-based)
- Control Stations.
 - Monitoring Stations.
 - Launch Facilities.
 - Hardware/Software









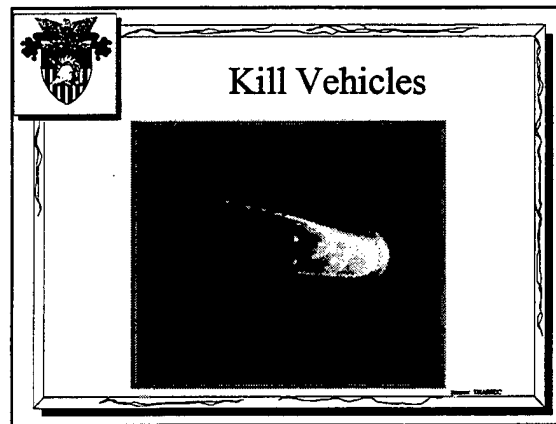
Sources of Threat (Physical)

- AntiSatellite Weapons (ASATs).
- Attitude Disruption.
- High Energy Lasers.

High Energy Lasers

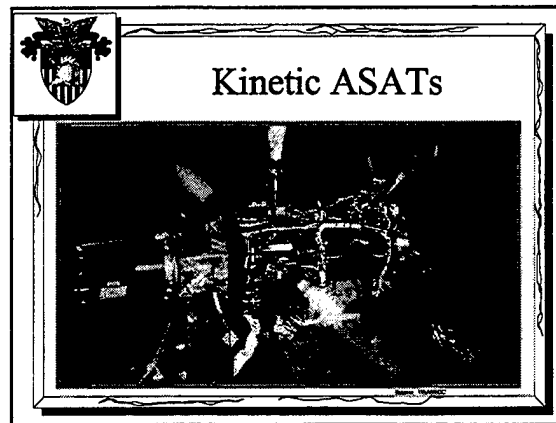
- THEL
- MIRACL
- SLBD

A photograph of a Tactical High Energy Laser (THEL) system. The image shows a large, dark, rectangular structure with various components and cables. The text "Tactical High Energy Lasers" is visible in the upper left corner of the image.



Sources of Threat (Kinetic)

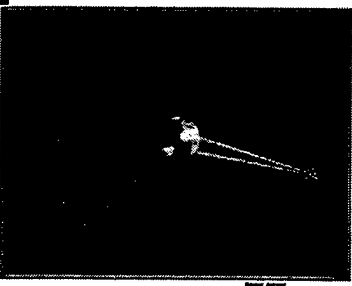
- Kinetic ASATs.
- Directed Energy Weapons.



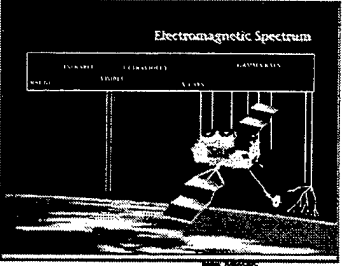
Sources of Threat (Electronic)

- Radio Frequency Interference (RFI).
- Electromagnetic Spectrum Management.
- Jamming.
- Spoofing.
- Electromagnetic Pulse (EMP).

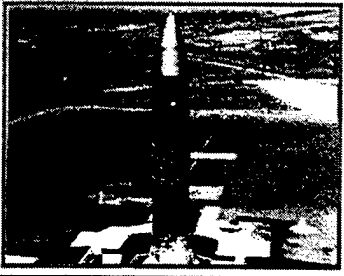
Beamwidth, Frequency?



Knows no boundaries



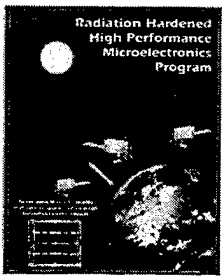
Ballistic Missiles



Threat Countermeasures

- Ballistic Missile Defense.
- Anti-spoofing.
- Hardening.
- Reconstitution.
- Decoys.
- Evasive Capability.

Radiation Hardening





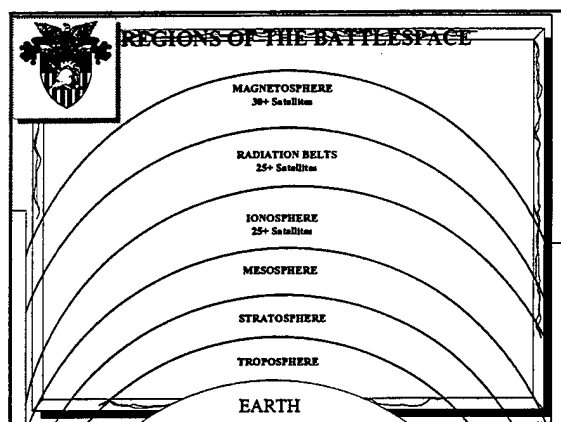
Key Players

■ NASA	■ TRW
■ NOAA	■ Lockheed Martin
■ DoD	■ Loral
■ FCC	■ Orbital Sciences Corp.
■ ITU	■ Motorola
■ ESA	■ Earthwatch
■ CCRS	■ Hughes
■ NASDA	■ SII/EOSAT



The Future

- Commercialization.
 - Earthwatch
 - Space Imaging
 - Teledesic
 - GNSS
- Army After Next Winter Wargame.
- Solar Cycle 23



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***Briefing: Air and Space Power: Decisive Instrument of
National Power***

Major Peggy Palmer