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STRATEGY RESEARCH PROJECT

ARMY AIRBORNE RECONNAISSANCE STRATEGY

BY

LIEUTENANT COLONEL AMMON A. SINK
United States Army

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Lieutenant Colonel Ammon A. Sink
United States Army

Colonel Marland J. Burckhardt
Project Advisor

U.S. Army War College
Carlisle Barracks, Pennsylvania 17013

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ABSTRACT

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July 1993: the House Armed Services Committee directed the Secretary of Defense, in coordination with the Director of Central Intelligence, to provide an integrated airborne reconnaissance strategy for the post-cold war era. The Deputy Secretary of Defense subsequently created the Defense Airborne Reconnaissance Office (DARO) to unify existing airborne reconnaissance architectures and enhance the management and acquisition of manned and unmanned airborne assets. This research paper will examine the Army's integration of it's airborne reconnaissance requirements into the new Department of Defense airborne reconnaissance strategy. The Army's difficulty in integrating its system recently resulted in the termination of theater level programs such as (Hunter-UAV), leaving critical intelligence collection gaps at corps and echelon-above-corps.

This paper argues that Army airborne reconnaissance systems as outlined in the Army Intelligence Master Plan are vital,

efficient enablers to both Joint and Army Vision 2010. Problems integrating Army systems into the Department of Defense strategy have arisen because of lack of understanding and support at Army and Joint Staff levels.

The paper concludes with the warning that, without increased awareness and emphasis from the Army on Joint Staffs such as the Defense Reconnaissance Office, the Army's airborne reconnaissance programs will continue to erode. This erosion of capabilities will directly impact the ground commanders' ability to shape the battlefield.

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The Army's airborne reconnaissance programs have provided dedicated support to commanders from Vietnam through the Cold War, they supported Desert Shield/Storm ground commanders and today remain a vital component of Army warfighting capabilities. Army airborne intelligence platforms allow commanders to see and hear deep into the battlefield. As portrayed in the Army's Intelligence Master Plan, they provide the cornerstone for future systems designed to provide our operational forces with information dominance. These "proven (often undervalued)" programs are now at jeopardy in the rush to downsize the military and develop "purple" theater level intelligence systems¹

How serious are current challenges to the Army airborne reconnaissance programs? Are they in jeopardy because of their high cost or lack of validated requirements? Or could their devaluation be caused by the lack of understanding and support from the Army and Joint Staff leadership? This paper will examine these questions, beginning with a review of the Army's airborne reconnaissance programs: historical background, capabilities, cost, requirements and management. This review and analysis will emphasize three issues: first, the actual contributions of airborne sensors to ground commanders as they shape the battlefield; second, the roles the Defense Airborne Reconnaissance Office (DARO) plays in insuring the ground

commander's airborne reconnaissance needs are met; third, and perhaps the most emotional, the issue of command and control of jointly developed airborne collection systems.

Background

Today both Joint and Army Vision statements acknowledge the need for "Information Dominance" to give the combat commanders complete situational awareness, thereby eliminating the "fog" of war. This requirement is certainly not new. In 1862 during the Civil War, the Union's V Corps Commander MG John Porter went up in Thaddeus Lowe's hot air balloon to observe Confederate positions. This ability to look down on the enemy position as if arrayed on a chessboard presented an unparalleled opportunity. Porter's airborne reconnaissance triggered commanders' realization of the vital importance of augmenting ground reconnaissance by aerial means.

Modern Army airborne reconnaissance has been controversial since the enactment of the National Security Act of 1947. Army airborne reconnaissance systems have been a recurring issue in the ongoing controversy between the Army and Air Force over roles and missions. In 1956, Secretary of Defense Wilson attempted to resolve the controversy over the use of aircraft by the Army. Secretary Wilson declared that, "The Army Aviation Program will

consist of those type of aircraft required to carry out the following Army functions envisaged within the combat zone -- observation, visual and photographic reconnaissance, fire adjustment and topographical survey."²

This pronouncement allowed the Army to develop jointly with the Navy the highly successful OV-1 Mohawk surveillance systems. Despite the foregoing Department of Defense (DoD) policy statement and approval for the procurement of the Mohawk and subsequent organic intelligence aircraft by the Army, the controversy over roles and missions continues today. The current debate revolves around deep battle interdiction and command and control of assets.

The question of command and control of deep battle airborne sensors is crucial to future development of Army airborne reconnaissance assets. In order to understand the significance of the command and control issue, we must first review the desired result or end state of the Army airborne reconnaissance mission.

Desired End State - Vision 2010

Airborne Sensors are referenced frequently as key enablers to execute ARMY Vision 2010. They serve as key components of Dominant Maneuver/Precision Engagement. The capabilities and

requirements listed below clearly specify the desired "End" state of the Army airborne reconnaissance systems:

Modern technologies will exploit situational understanding phenomena to enable tailored, still undefined combat organizations to task organize quickly and fight dispersed with extraordinary ferocity and synchronization. Fused inputs from manned and unmanned sensors will provide unprecedented battlefield situational understanding to depths well beyond the horizon. Significant advances in avionics, weaponry, mobility, stealth, survivability and communication technologies will make the land force truly the force of decision on the 21st Century battlefield.³

The "situational understanding" cited above in Army Vision 2010 is key to the operational commander's capability to locate, identify, outmaneuver, and outshoot enemy forces. Airborne reconnaissance assets are essential to meeting the three prerequisites for operational level success:

1. The ability to fight and win the sensor duel. This duel will be a reconnaissance/counterreconnaissance battle fought with sensors as well as soldiers. The outcome of the sensor duel relates closely to the outcome of the entire battle because the winner of the duel succeeds in shaping the battlefield.
2. The ability to provide a "fatal visibility" over the battlefield. We must be able to find the enemy and track him. From this, we can prejudge his actions and beat him to the punch. We can strike him first, at great range, and effectively disrupt his plans.
3. The ability to support the battlefield cycle of concentrate/attack/disperse. ..You disperse, you mass, you fight a short, synchronized fight and then you disperse again. The focus from beginning to end is on the enemy force rather than on terrain.⁴

FM 100-5 addresses the requirement in the most concise manner:

What is most important...is the fact that in any operation the Army must have the ability to gain information and influence operations throughout the depth of the battlefield⁵

Recently strategists have debated the issue of who should control the deep strike weapons. But they have paid much less attention to the issue of the deep battle sensors.⁶ This paper points out that lacking the ability to find and track the deep targets, it will not matter who controls the triggers or where the Fire Support Coordination Line (FSCL) is located. The deep battle starts with the sensors. The Army may be incapable of executing the deep battle interdiction mission if it does not have access to responsive sensor systems.

The fleet of airborne sensors designed to meet the needs of the operational commander is made up of a mix of joint and organic manned and unmanned systems. Appreciation of the role Army airborne reconnaissance systems play in this information-based warfare requires a brief operational description.

Army Airborne Reconnaissance Systems

GUARDRAIL COMMONS SENSOR (GR/CS). The GUARDRAIL COMMON SENSOR is the Army's premier manned airborne reconnaissance program. The GR/CS evolved from the older, highly successful Guardrail V and Improved GUARDRAIL program. The GR/CS is a corps-level airborne signal intercept, processing, direction-finding (DF), and targeting system. Each unit is equipped to operate for up to 20 hours per day for 30 days. The system provides indications and warning, situation and target development over the entire corps area of interest and beyond. The unique GR/CS method of conducting multi-platform airborne geolocation produces a level of speed and accuracy in SIGINT targeting unmatched by any currently fielded system.⁷

GR/CS provides data to as many as 24 intelligence operator/analysts on the ground, who remotely control the mission equipment via an interoperable datalink (IDL). The IDL also allows the control of SIGINT payloads on other Services' platforms. The XVIII Airborne Corps GR/CS system has a remote relay capability allowing aircraft to deploy anywhere in the world while the ground facility remains in sanctuary, thereby

dramatically reducing the airlift requirement and the size of the forward element.

Over the past 24 years, Guardrail systems have provided critical U.S. SIGINT collection capability in all theaters. Guardrail provided collection coverage along the inter-German border from 1972 through 1990, in Korea from 1974 to the present, and in Central America from 1983 through 1994. Two systems deployed to Southwest Asia during Operations DESERT SHIELD and DESERT STORM. As of January 1997 one system remains in Korea, one system is in Europe supporting Operation JOINT ENDEAVOR. (It has recently completed 1000 successful missions, receiving many Kudos for its support.) Task Force Eagle and the EUCOM Combined Airborne Operations Center have called GR/CS the best theater and tactical collector of information in support of their operations.⁸

Airborne Reconnaissance Low (ARL). The latest manned airborne collection system is ARL, which was created in response to the USCINCSOUTH'S urgent requirements for airborne radio direction-finding and electro-optic capabilities in low intensity operations. The design requirements stipulated that Airborne Reconnaissance Low should support stability and military operations other than war in SOUTHCOM'S area of responsibility.

The DeHavilland Dash-7, four-engine, turboprop, commuter airplane was chosen as the platform for SIGINT and Imagery (IMINT) collection. The highly modified airframes have extended range and carry the most advanced aircraft survivability equipment. In addition to supporting SOUTHCOM, ARL received laudatory comments for its valuable intelligence support to the Haitian operation.⁹

In the aftermath of the destruction caused by Hurricane Marilyn in September 1995, the Federal Emergency Management Agency (FEMA) received ARL support for disaster assessment and relief within 24 hours of their request. With FEMA personnel on board, the ARL conducted flights over the Virgin Islands and Puerto Rico.

Currently ARL aircraft with synthetic aperture radar (SAR) are filling a critical need in Korea, created by the retirement of the OV-1D Mohawk side looking airborne radar, along with the scarcity of JointStars.

Quickfix. The Army's rotary wing tactical reconnaissance system is known as Quickfix, a combined COMINT and Jamming capability mounted on board a EH-60 Blackhawk helicopter. Responsibility for this unique systems operation is shared between the Divisions Aviation Bde and the Military Intelligence

Bn. Quickfix has demonstrated its value in numerous NTC exercises, but limited utility in Desert Storm. The system was restricted in its operating profile (altitude) due to difficulties in integrating in the Joint Air Tasking Order (ATO). Tactical Army helicopters are limited to operating below the coordinating altitude of 500 feet above ground level (AGL). In order to optimize the system's direction-finding accuracy Quickfix missions call for flights of up to 10,000 ft, dependent upon the air threat. Because of its tactical heliborne mission, Quickfix has not gained attention from the joint arena.

The Army's next generation of reconnaissance system is called *Airborne Common Sensor (ACS)*. The concept for ACS responds to the requirement to conduct multiple intelligence operations (SIGINT, IMINT) from an aircraft that can self-deploy world wide, loiter for extended periods, and provide near-real-time intelligence to supported commanders. The draft Operational Requirements Document (ORD) for ACS requires the integration of the best features of Guardrail Common Sensor and Airborne Reconnaissance Low (ARL) programs. The ORD also requires common data links and capability of controlling sensor payloads of UAVs within data link line-of-sight range. Unlike Guardrail and ARL, Airborne Common Sensor will be incorporated into the Defense

Airborne Reconnaissance Program (DARP), and administered by the DARO. The success of the ACS program will depend on the DARO's support of an Advanced Concept Technology Demonstration (ACTD) within OSD. Without a strong Army advocate, this system will certainly sit on the shelf for want of a champion.

Unmanned Aerial Vehicles (UAV) make up the remaining systems in the Army's airborne sensor arsenal. UAV offer an impressive cost-saving over manned platforms. Survivability, cost efficiency and proven performance in Desert Storm attest that UAV have a bright future. The potential of Military UAV has been explored by all Services since Vietnam. The UAV concept was recognized by Congress in 1988, which directed the Department of Defense to establish a Joint Program Office for UAVs. All current and planned UAV systems are multi-Service; they are intended to be as interoperable as is practical and are linked with Service command, control, communications, computers, and intelligence architectures. ¹⁰

The Defense Airborne Reconnaissance Program (DARP) currently has two major UAV programs designed to meet operational requirements outlined by the Joint Requirements Oversight Council (JROC). The first program is the Joint Tactical UAV Program,

which included the *Hunter* UAV and Maneuver UAV. The *Hunter* UAV was designed to support Army commanders from echelons above corps (EAC) to armored cavalry regiment (ACR) at Deep Battle ranges of up to 300 km for eight or more hours of endurance. In October 1995 the JROC strongly recommended the termination of the *Hunter* program in light of the potential contribution of other UAVs, especially the close-range *Outrider* and Medium Altitude Endurance *Predator*. The JROC also recommended that savings realized from termination (\$984.7) be reprogrammed from the DARP to the Services for other warfighting priorities.¹¹ The *Hunter* Program was formally canceled in 1996 by Mr. Kaminski, the Undersecretary of Defense for Acquisition and Technology.

The termination of *Hunter* surprised many in the Army. The two to three year interval between the demise of *Hunter* and the fielding of *Predator* is a major Army concern.¹²

Since the Army was the proponent for the *Hunter*, the Army assumed that the majority of the \$984.7 million savings would be returned to the Army to address modernization shortfalls. But the Army received only \$100 million for sustainment of one *Hunter* system and \$15 million for Guardrail Common Sensor.

The remaining Army UAV is the Tactical UAV. Designed to support Army maneuver brigade and armored cavalry regiment (ACR)

commanders, the *Outrider* Tactical UAV (T-UAV) will have a range of 200 kilometers with three hours on-station. It will carry a day and night electro-optical and infrared sensor for reconnaissance. This program is currently a two-year Advanced Concept Technology Demonstration (ACTD). If the ACTD proves successful, the Army will field the T-UAV to all Active Component units by FY 02.

The system that must pick up the mission from the Army's defunct *Hunter* Program is the **Medium-Altitude Endurance UAV**, also known as the *Predator*. The *Predator* program is currently in a 30 month ACTD phase to be completed in July 1997. The system is designed to provide long-range (300-500 nm) reconnaissance, endurance of greater than 24 hours, near-real-time IMINT to satisfy reconnaissance requirements of Joint Task Force and theater commanders. The *Predator* has deployed to Bosnia, where its military utility is evident.¹³ Two deployed *Predator* platforms have been lost, an interesting circumstance since many felt the loss of three *Hunter* airframes in training contributed to its termination.

The *Predator* system is organic to the 11th Reconnaissance Squadron, U.S. Air Force. The Army will have forward control elements at military intelligence units from EAC through ACR to

control the *Predator* platforms and provide direct support to Army commanders.¹⁴ Recently the Air Force published a report giving the *Predator* in Bosnia a qualified "go" with regard to meeting the Army's dynamic retasking requirements while using the Air Force concept of operations (CONOPS). This concept of operation has yet to be proven under conditions outlined in Army Vision 2010. The Army remains skeptical of the validation process, as the TRADOC System Manager indicates.

*The Air Force evaluation of the Predator UAV to provide "responsive retasking capability" for the Army corps and divisions focused on the present peacekeeping effort in Bosnia. Unfortunately, this evaluation effort was doomed to failure from the start. The unique C4I architecture within EUCOM, the static nature of both friendly and "threat" forces, and paucity of truly dynamic re-tasking opportunities does not lend themselves to proving either the Air Force CONOPS or the Army Forward Control Element (FCE) concept. The only true test would be a full-up MRC with numerous and simultaneous requesters requiring Ad Hoc Predator missions with several different kinds of targets within their AO.*¹⁵

Many Army observers assumed the *Predator* would come under Army control as a replacement for the *Hunter*. However, one of the reasons cited for Air Force control was that the 2500 feet of runway requirement for the *Predator* would be too long for the Army to accommodate.¹⁶ Since the *Predator* system could operate out of the corps airfield (min. 3000 Ft), with the other MI

Battalion (Aerial Exploitation) aviation assets, this justification for Air Force control is less than convincing.

The remaining UAV system is the **HIGH-Altitude Endurance UAV**. The High-Altitude Endurance UAV (HAE UAV) is currently a three-year ACTD under sponsorship of the Defense Advanced Research Projects Agency and the Services. It will be a strategic and joint task force oriented system. Currently, there are two HAE UAV systems under development. The *Global Hawk* is a conventional UAV with a range in excess of 3,000 nm and a duration in excess of 24 hours on station. It will have EO/IR and radar capability initially, with growth planned for a communications node or surrogate satellite and SIGINT payloads. The *Dark Star* is a low-observable UAV designed to penetrate into heavily defended areas and conduct reconnaissance, surveillance, and target acquisition missions with EO or radar payload.

As discussed, the Army's airborne reconnaissance system capabilities are as good as any other Services'. Their managed evolution has produced efficient systems tailored to meet the operational commander's needs.¹⁷ The development and management of these systems has always been a very complex process involving many agents. A brief list of those agents, and a recent important change will be discussed below.

Management

Over twelve major organizations influence the Army's airborne reconnaissance system development. These organizations include such power brokers as Training and Doctrine Command (TRADOC) - consisting of Combat Development and System Managers at FT Huachuca and FT Rucker); Deputy Chief of Staff for Intelligence (DCSINT); Deputy Chief of Staff for Operations (DCSOPS); Principal Executive Office for Intelligence and Electronic Warfare (PEO-IEW); Intelligence and Security Command; National Security Agency; Joint Chief of Staff; Unified Commanders; Defense Airborne Reconnaissance Office (DARO); and Congress.

The most recent developmental management change has removed much of the future hardware and operational architecture development of airborne deep battle sensors from the Services' hands. These matters now reside with the *Defense Airborne Reconnaissance Office (DARO)*.

Defense Airborne Reconnaissance Office (DARO)

In order to understand the impact that the DARO will have on operational commanders in the future, we must understand why and

how it operates. DARO was established by Deputy Secretary of Defense (Acquisition) William Perry in a 6 November 1994 memorandum¹⁸. DARO was established as the DoD organization responsible for management oversight of the development and acquisition of all joint Military Department and Defense-wide airborne reconnaissance capabilities-including manned and unmanned aerial vehicles, their sensors, data links, data relays, and ground stations.

DARO is under the authority, direction, and control of the Deputy Under Secretary of Defense (Advanced Technology). The Air Force is the Executive Agent for the DARO, with a two-star flag officer serving as its Director. Five offices within DARO are headed by various services: Reconnaissance Infrastructure (LTC/USAF), Advanced Development (CMDR/USN), Manned Reconnaissance (COL/USAF), Unmanned Aerial Vehicles (CAPT/USN) and Architecture and Integration (COL/USA).

The DARO was tasked to assess the airborne reconnaissance needs of the U.S. through 2010 and then to develop and implement the strategy to meet those needs in a timely and cost-effective manner. DARO has completed this task by constructing an Objective Architecture, which will:

- Consolidate and integrate the current fleet of platforms, introducing UAVs for steerable, long dwell, synoptic imagery coverage
- Emphasize Synthetic Aperture Radar (SAR) as the imaging baseline for its all weather capability, reducing dependence on photo reconnaissance for broad area coverage
- Provide a coordinated, high capacity, integrated information storage, retrieval and distribution infrastructure
- Consolidate ground stations into multi-user access, multi-INT (IMINT, SIGINT, MASINT and HUMINT) distributed systems
- Utilize multidiscipline interactive cueing where SIGINT cues imagery and imagery cues SIGINT in support of integrated theater data bases to increase useful information while reducing wasteful sensor coverage
- Operate across the full range of threats and conflicts: small to large, conventional to weapons of mass destruction, including information war.¹⁹

Certainly the charter and proposed architecture of the DARO are sound: The Objective Architecture incorporates many of the goals established in the Army Intelligence Master Plan (AIMP). The problem is not the DARO itself; but in the Army's reluctance to support DARO. The Army's lack of representation in DARO's organizational structure, and the Army's failure to endorse this potentially vital organization are both problematical issues. In short, the Army seems to have essentially excluded itself from an organization that is critical to its future warfighting capability.

The Army has viewed four of the six Army personnel authorizations to DARO as non-critical and has elected not to

fill them. The Secretary of the Army for Research, Development and Acquisition and Deputy of Chief of Staff for Operations (DCSOPS) are not enthusiastic about filling these vacant positions. They offer no clear-cut reason for their reluctance. Certainly the fact that the Army staff is faced with downsizing and has yet to be convinced of the added value to the Army that DARO may bring has impacted their decision. Some officers in DARO also speculate that it may be the perception of the Army staff that DARO and airborne sensors are an "intelligence" community issue. Only the Army's Deputy Chief of Staff for Intelligence (DCSINT) has supported the DARO by filling the Army's 06 position from his own DCSINT staff.

The Army's continued reluctance to participate in the DARO by refusing to assign qualified personnel will result in the Army's views and needs going virtually unheard. In the past, positions on joint staffs such as the DARO were considered outside the mainstream of Army concerns. Nonetheless, if Army Vision 2010 is to be executed, the Army must play in the joint arena with first-string players. A recent Army magazine article addresses the Army's slowness-even-refusal to assign qualified officers to joint staffs:

Does the absence of Army representation in the joint arena make any difference? One could certainly argue that it should not. Yet evidence indicates

otherwise. A quick look at where modernization and recapitalization dollars are going shows it is not to the Army. In terms of program acquisition costs, the Army does not have one program in the top 10. In fact, while the other Services have the next generation's three new tactical fighters in high-profile, funded, strongly supported programs, the Army has yet to apply a single programmatic dollar to its next generation tank. When viewed in light of the recent past-the huge decrement to the theater high-altitude area defense system and death of other *systems* (such as the Hunter UAV) - one can only conclude that the Army is a Service having real trouble making things happen in the joint arena...The Army's sister Services, on the other hand, have placed highly qualified, motivated officers throughout the Joint Staff who serve the Chairman and JCS faithfully and well. While these officers are not on the Joint Staff to represent their individual warfighting perspectives, they inevitably bring with them the unique experience and perspective gained from years in their own Service. ²⁰

The bottom line is that the DARO is a Congressionally mandated organization that is the new power broker for all future DoD Airborne Intelligence, Surveillance and Reconnaissance (ISR) programs. As an investment in the future, the Army must support the DARO with the best qualified personnel possible. The Army representatives to the DARO must advocate the Army's airborne reconnaissance strategy with the full assurance that it enjoys the support of the Army leadership. Officers assigned to DARO must be technically proficient in addressing ISR technical architecture as well as such future-oriented doctrinal issues as deep interdiction and command and control of assets.

These officers should serve as strategic practitioners: "The Strategic Practitioner develops a deep understanding of all levels of war and strategy and their interrelationships, develops and executes strategic plans derived from interagency and joint guidance, employs force through...command and peer leadership skills"²¹

These Army members of DARO should be able to articulate the differences in Service requirements, just as Gen Cushman did when he explained cultural difference between the air and land component commanders:

For example, to the airman "targeting" a bridge for destruction, the timing of its destruction may not seem important. To the land component commander, who has in mind destroying that bridge just when it will cause the moving enemy the greatest difficulty, timing is all-important.²²

Strategic Challenges for Army Airborne Reconnaissance

The future of Army Airborne reconnaissance systems is dependent on many factors. In addition to the challenges already mentioned in this paper, the Army systems face an *image* problem. Current technical and strategic literature makes very few references to the Army's airborne assets. On the other hand, a cursory search of the Internet resulted in nine very complimentary non-DoD articles prepared by the Air Force on Air Force systems.

In the DARO Executive Summary, a reference is made to the great support the Air Forces' U-2 provided to FEMA. There was no mention the contribution that ARL also made. The only current reference found on an Army system in a trade publication (Electronic Defense Dec. 1996) referred to the ARL-M initiative in Korea as being a "jerry-rig" effort.²³ Congressional staffers and other Service members who are not familiar with the accomplishments of the Army systems will certainly not view Army systems favorably on the basis of this kind of press!

A recent article in Army Aviation by the Product Manager for Fixed Wing aircraft, "The Fixed Wing Contribution to the Fight," does not mention airborne reconnaissance aircraft beyond the fact that he is responsible for their material development.²⁴ Such slights signal that Army reconnaissance aircraft do not "contribute to the fight."

These examples are not program shattering. But in this era of shrinking budgets and reviews such as the Quadrennial Defense Review (QDR), they should not go unchallenged. Good news must get out to the decision makers. For instance the ARL-M initiative in Korea has provided a very efficient and economical solution to a critical intelligence shortfall. Initial reports indicate that it is doing well in meeting the CINC's needs at a fraction of the

cost of a Joint Stars system.²⁵ According to Army sources, it costs \$1700 per hour to operate ARL, whereas the Air Force RC-135 costs \$8500. The Army should advertise such contributions. The Air Force would. The Army needs to learn the value of advertising. "Doing business without advertising is like winking at someone in the dark: you know what you are doing, but nobody else does."

The Army is already facing the consequences of not paying the proper attention to these issues:

There is a shortfall in Corps-level airborne reconnaissance support. Discontinuance of the *Hunter* unmanned aerial vehicle (UAV), continued pressure to downsize aviation programs, and transfer of the *Predator* UAV system to the Air Force as a Theater system point to an increasing underlap in tactical coverage. The Joint Requirements Oversight Council (JROC) is currently looking at the requirement for a UAV -- (Tactical Variant,) but Navy attempts to extend its range could evolve into a system that is larger than *Hunter* and prevent its development.²⁶

Another recent and very disconcerting example of the potential damage that the Army's lack of attention can cause to its airborne reconnaissance programs was apparent in the **SIGINT Mix Study (SMS)** results. The SMS sought to conduct an objective projection into the early part of the next century to determine the type and mix of electronic warfare systems needed. Very confident in the effectiveness and capabilities of the Army's

airborne SIGINT systems, the Army did not pay adequate attention to the study's modeling effort. Then Army leaders were shocked by the recommendations. In a preparatory briefing MG Israel, Director of DARO, cited the SMS study in presenting numbers of platforms needed for the future airborne SIGINT architecture, reducing both Guardrail Common Sensor and Air Reconnaissance Low to zero. Notably no other platforms were so reduced. The Program Manager for Guardrail Common Sensor has taken the SMS to task, stating:

The recommendations are fundamentally wrong and based on either naive or intellectually dishonest modeling. Operational issues were not included in the model and only considered secondarily after the platform analysis was done. The Navy system was retained to allow the Navy to have organic "Blue Water" coverage and the Air Force system retained because, "the air battle goes so fast." The Army system was deemed not necessary because there is sufficient time to process signals and get it back to commanders on the ground because the "ground battle is a fairly slow process." These comments alone show the lack of understanding of the tenor and tempo of ground combat.²⁷

The SMS does appear flawed. But the damage is already done. Now the Army staff must fight to have the study rejected or revised. This will cost additional resources, and the perception will remain. This problem appears to a perfect example of what LTC Troy was addressing in "Is the Army Out of Step in the Joint Arena?": "Since the Army was not properly represented when the issue was being framed, the Army Staff must fight and refight the

same issues on other people's terms. The Army appears to be in a reactive, catch-up mode that leaves it far short of its objectives."²⁸

Perhaps Department of Defense is overemphasizing *jointness*. Even so, the Army cannot simply refuse to "play the jointness game." As pointed out in this paper's discussion of the DARO, the interoperability of equipment and doctrine will help to promote close and effective integration of all services. Eliminating unnecessary duplication of generic capacities is another part of the answer. But total elimination of a Service capability is unwise. While it may appear to make economic sense to have only one Service responsible for air reconnaissance missions, militarily the Services' unique missions and needs make such a proposal perilous.

The drive to develop "purple" systems such as Joint Stars and *Predator* appear to violate a principle of war-**unity of command**. Joint Pub 3-0 clearly acknowledges this principle: "The purpose of unity of command is to ensure unity of effort under one responsible commander for every objective."²⁹ "Purple" sensor systems are characterized by air platforms controlled or flown by the Air Force in support of both Army and Air Force collection requirements. The Joint Program Management Handbook

warrants such endeavors: "Jointness may be defined as a single system that satisfies the needs of more than one component."³⁰ But problems quickly arise when such systems have two masters. Only one commander should fight the Deep Battle. And that commander should have total access to all systems needed to execute the mission.

Developing these complex systems has turned out to be **very expensive**. High cost has reduced the availability of systems. The systems themselves have become **complicated in their employment by involving multiple commands and satisfying the requirements of multiple customers with different needs**. Estimates reveal that as much as fifty percent of the time devoted to developing a joint Operational Requirements Document (ORD) is spent discussing *operational trade-offs* ³¹

JointStars is a good example. The original requirement was to develop a follow-on to the Army's side looking airborne radar (SLAR) system on the Mohawk. In the interest of jointness and potential efficiencies, the Army and Air Force Chiefs of Staff agreed to build a joint system. The Air Force took the lead in developing the air frame, while the Army was responsible for the ground station. The developmental system has been a great technical success, as demonstrated in Desert Storm. But

Jointstars could not meet all the operational requirements in Desert Storm.³² Likewise, at a cost of over \$75 million dollars per airframe, its future is not certain.³³ The Army's original concept called for the system to be mounted on a smaller, less expensive aircraft, which would be deployed in support of corps and echelon above corps forces.

Hunter was canceled in part because the *Predator* system was seen as duplication of capability. It remains to be proven that an Air Force operated *Predator* will be responsive to the ground commander's needs. This is not a matter of trust. Rather it is clearly a matter of efficiency and a valid concern about the principles of war: **unity of command** and the concept of **dedicated support**.

During Desert Storm, more that **85%** of the U.S. military airborne reconnaissance assets were deployed. Still they could not meet the commander's needs. It is obvious from that experience that future requirements will exceed our current capacity to collect, process, and exploit information.³⁴ This dramatic shortfall suggests that issues of support and priority of effort will intensify as both the air and ground commanders vie for theater airborne sensors, especially in conduct of the Deep Strike Battle.

Summary

The objective of the Army Airborne reconnaissance strategy is to provide commanders situational awareness, thereby enabling Army Vision 2010 to be realized. This objective is well stated and documented. Yet not all the joint players, to include the Army leadership, have embraced the strategy. Unresolved issues between the Air Force and the Army over the Deep Strike Mission are pivotal. This research project points out that airborne sensor development is tied to the Deep Battle: We must first win the sensor battle in order to execute the Deep Strike mission.

The Army has a robust airborne reconnaissance capability; it has evolved from a system that has served land commanders well. The Army systems are cost effective and critical to the 'systems of systems' outlined in the Army Intelligence Master Plan. These systems are currently at risk largely because of the Army's lack of adequate representation at the joint decision-making level. Army staffing at the DARO is necessary to ensure the land component commander's needs are understood and incorporated into future system development. DARO representation will also insure that Army systems are properly portrayed to Congress and other Services.

Conclusion

Army airborne reconnaissance programs are currently jeopardized in the drive to create "purple systems" and the corresponding change in the development paradigm created by the new and powerful Defense Airborne Reconnaissance Office (DARO). In these times of dwindling resources, jointness has become the fashionable panacea. While there is no doubt that interoperability and unity of effort under Joint Doctrine are viable current and future concepts, this study suggests that the Army reconnaissance systems may be traveling in a direction of *too much jointness* and away from our history, in potential violation of such proven concepts as unity of command and dedicated support.

Even so, the Army should not view the DARO as an impediment to future Army airborne reconnaissance programs. Instead the DARO should be viewed as the agent for determining the proper balance and synergy between Services.

Recommendations

The Army and Air Force under Joint Chief of Staff's direction must reach closure on the Deep-Strike mission. The Army must persuade the Joint Staff of the Army's need to have responsive Deep Battle airborne sensors. The Army staff, in coordination

with the DARO, should vigorously pursue solutions to the command and control question. A possible answer would be to assign a Predator system to both the Air Force and Army. This action would deconflict mission tasking and priorities by providing direct support to the assigned command and assuring unity of command for both the ground and air mission.

The Army must develop and employ *Strategic Practitioners* in joint offices such as DARO if it is to remain a viable Service in the future. These officers must ensure the ground commanders' needs are understood and built into "purple systems" when it is the *right* thing to do, not just the *fashionable* thing.

Closing Comment

As a key part of the Army Intelligence Master Plan, Army airborne reconnaissance systems are vital to Army Vision 2010. These systems are being lulled into extinction by the siren song of *Jointness*.

Reporting on the Army's performance during Desert Storm, Gen Scales offers this profound observation and admonition in Certain Victory:

"Tactical forces have specific intelligence requirements that joint national agencies cannot satisfy. Organic Army intelligence proved absolutely necessary to meet the needs of ground tactical commanders in Desert Storm"³⁵

ENDNOTES

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³ Department of the Army, Army Vision 2010, p 12.

⁴ Jack Ellertson and Alan Huffman, "Joint Precision Interdiction in the Post-CFE Environment," Military Review July 1991:p45.

⁵ Department of the Army. FM 100-5 Operations, June 1993, p 1-4.

⁶ Owens, William, "The Emerging System of Systems," Proceedings, May 1995, p 35-39.

⁷ Ronald Wilson, "Eyes in the Sky," Military Intelligence Professional Bulletin, July-September 1996, p 17.

⁸ Ronald Wilson, TSM UPDATE 20 Dec 96, Guardrail Common Sensor.

⁹ Stan Niemiec, "Airborne Reconnaissance Low (ARL), Army Aviation, 30 November 1995, pp.27-30.

¹⁰ Ronald Wilson, p 16.

¹¹ The Joint Chiefs of Staff Joint Requirements Oversight Council, "Short Range Unmanned Aerial Vehicle", memorandum for the Chiefs of the Military Services, Washington, 13 October 1995.

¹² TSM-UAV Briefing to Defense Airborne Reconnaissance Office, December 1996

¹³ Defense Airborne Reconnaissance Office, "1995 Unmanned Aerial Vehicle Annual Report," August, p. 21.

¹⁴ Ron Wilson, p 16.

¹⁵ Ron Wilson, TSM UAV UPDATE 20 Dec 96, Predator.

¹⁶ Defense Airborne Reconnaissance Office, "1995 Unmanned Aerial Vehicle Annual Report," August 1995, p 27.

¹⁷ PEO-IEW Cost Data. Approx hourly operating cost: Army (RC-12=\$1200), (DHC-7=\$1700), Air Force (RC-135=\$8500), (U-2=\$10,000), (SR-71=\$80,000).

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²¹ Chilcoat Richard, "Strategic Art: The New Discipline for 21st Century Leaders, Strategic Studies Institute, p iv.

²² John Cushman, Thoughts for Joint Commanders, August 1993, p 39.

²³ Electronic Defense, Dec 1996.
<http://www.jeddefense.com/jed.html>, accessed Jan 2 1997.

²⁴ Randall Cason, "The Fixed Wing Contribution to the Fight," Army Aviation, Nov 1995, p 39.

²⁵ Ronald Wilson, TSM Update, 22 Nov, Airborne Reconnaissance Low (ARL).

²⁶ Hoyt Cruz, "Need for Army-Controlled Reconnaissance Assets," DCSINT White Paper, August 1996.

²⁷ Bruce Jette, "Review of the Conclusion and Model of the SIGINT Mix Study," 26 March 1996.

²⁸ William Troy, p 8.

²⁹ Joint Pub 3-0, Doctrine for Joint Operations, 1 Feb 1995, A-2.

³⁰ Joint Program Management Handbook, Defense Management College Press, July 1996 p 5.

³¹ Ibid, p 35.

³² Robert Scales, Certain Victory: The US Army in the Gulf War, p 168.

³³ Electronic Defense, Dec 1996.

³⁴ Defense Airborne Reconnaissnce Office, IARS Executive Summary.

³⁵ Robert Scales, p 371.

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