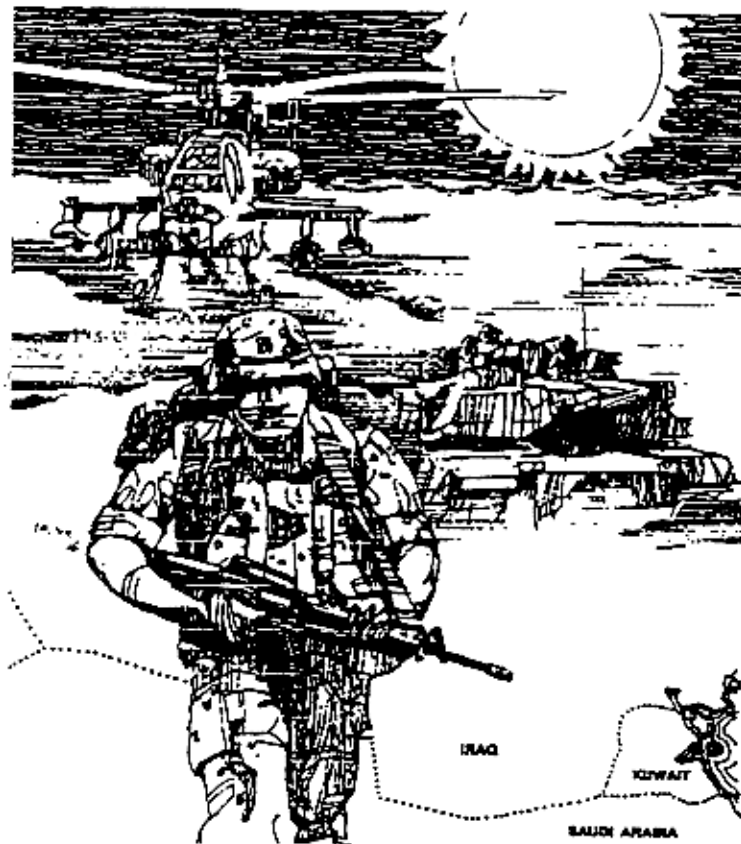




"ALWAYS FIRST -
WE WERE"



OPERATION
DESERT STORM
THE MILITARY INTELLIGENCE STORY:
A VIEW FROM THE G-2
3D U.S. ARMY



APRIL 1991

JOHN F. STEWART, JR.
BRIGADIER GENERAL (P), U.S. ARMY
G-2, 3D U.S. ARMY

Table of Contents

Preface.....	i
Executive Summary.....	ii
1. MI Firsts.....	1
2. Purpose & Scope.....	3
3. Challenges.....	3
4. Most Important Objective.....	5
5. The Challenges in a Top-down Intel Approach.....	6
a. Finite Collection Systems.....	6
b. Competing Requirements.....	6
c. Intelligence Team in Transition.....	7
d. Communications and Computer Links.....	7
e. IEW Synchronization.....	8
f. Top Down Approach.....	9
g. Dissemination.....	10
h. Lucky TAC.....	11
6. Critical Support.....	12
a. Army Intelligence Agency.....	12
b. DIA - Joint Intelligence Center.....	14
c. USAIC, INSCOM, J-2 FORSCOM & PEO-IEW Support.....	14
d. The 30th Engineer Battalion (TOPO) Support.....	15
e. JIPC Support.....	15
7. Intelligence Operational Challenges.....	17
a. Targeting.....	18
b. Battle Damage Assessment.....	19
c. Arabic Linguists.....	21
d. Maps.....	22
8. Intelligence Support to Campaign Planning.....	23
a. Campaign Planning.....	23
b. Terrain Analysis.....	24
c. Key Estimates.....	24
9. IEW Lessons Learned.....	26
a. Common Themes: Grenada, Panama & The Gulf.....	26
b. Quality Soldiers and Leaders.....	29
c. IEW Communications.....	29
d. Imagery Architecture.....	30
e. Balanced Collection Capability at Division & Corps.....	32
f. IEW Doctrine & Training.....	32
g. EAC Intelligence Support - 513th MI Brigade.....	35
h. G2/MI Commander Relationship.....	36
i. The EAC Brigade: A Contingency Force Multiplier.....	36
j. Army Operations Require Army Intelligence.....	37
k. MI Reserve Forces.....	38
10. Conclusion.....	38

PREFACE

I wrote this MI Story of DESERT STORM, because in a very direct way, this operation proved that the Army's investment in intelligence over the years was worth the cost. I wanted to describe, from my perspective as the Army's senior intelligence officer here in DESERT STORM what we did, how we did it, and what we learned, from the perspective of the G-2, 3d U.S. Army. I watched the shaping of the "history" of URGENT FURY (Grenada) as many personal and some political agendas were played out at the expense of what actually happened there. I hope this short description of DESERT STORM and the truly major historical work compiled by the G-2 ARCENT staff will contribute to an accurate accounting of Army Intelligence operations in this most successful and historical operation.

DESERT STORM was a team effort. The Armed Forces worked smoothly and jointly. The Army teamed up totally, with those of us here enjoying unqualified support from our Army at large. The MI Corps serves as an outstanding micro-example of the overall Army team effort. Virtually every element of MI made a major contribution to the effort here.

In many ways for MI, DESERT STORM stands forth as a harbinger for Army Intelligence operations in this decade and beyond. Our doctrine and soldiers came from the 1980's, and they served superbly here. But technology looked ahead with Non-Developmental Items and prototypes providing communications, computers, and collection links from Washington to combat divisions. We applied doctrine--innovatively, and we learned about how we must operate in the future.

Military Intelligence came of age here in the desert. MI stood up as a battlefield operating system co-equal with all others. It did so because MI delivered. Our challenge now is to modernize and institutionalize what we used and what we learned here. Our Army and our soldiers deserve nothing less.

John F. Stewart, Jr.
Brigadier General(P), U.S. Army
Assistant Chief of Staff, G2

Riyadh, Saudi Arabia
27 April 1991

EXECUTIVE SUMMARY

As a major historical event, DESERT STORM marked many firsts for Army Intelligence, as well: seven MI Battalions and 3 MI Brigades in the field, high technology collection (Joint STARS/Unmanned Aerial Vehicle) and Intelligence communications connectivity from Washington, D.C. to Army Divisions. This paper covers two broad areas: IEW challenges posed by DESERT STORM and emerging IEW lessons learned. Written by the G-2, 3d U.S. Army, it describes the Army Military Intelligence aspects of the operation as he saw them.

MI succeeded in DESERT STORM for many reasons. Quality people and a full Army MI Team effort represent the two most important. Captains filled over 90 percent of combat battalion S-2 positions. Every MI command made major contributions to the operation whether in people, systems, intelligence support, logistics, funding, or staffing.

ARCENT's MI capabilities matured in January, and the G-2 met several major challenges while simultaneously building an MI team. G-2 had to build commander trust, develop and field a communication and computer system, provide linguists for intelligence operations, distribute maps, and field a capability to provide tactical and operational intelligence through electronic and courier dissemination.

A critical objective -- focus intelligence downwardly on Corps and Divisions. For several reasons, operational and tactical intelligence came from above in DESERT STORM. This represented a new way of operating and required us to manage intelligence closely. The IEW Synchronization Plan allowed G-2 to do that. It linked all intelligence functions to the operations plan and required delivery of key intelligence to the 3d Army and Corps commanders how and when they wanted it.

Through this effort to provide intelligence downwardly, G-2 focused finite collection, created electronic and courier dissemination, and brought together Army Intelligence Agency (at Departmental level), theater, and Corps resources to focus on warfighter intelligence requirements.

Targeting and Battle Damage Assessment concentrated much of G-2 ARCENT's efforts during the air campaign. ARCENT developed most of the targets on the Iraqi Army in the Kuwait Theater of Operation (KTO), as well as provided all BDA in the KTO. While controversial at the time, ARCENT's BDA assessment was accurate.

Finally on challenges, maps and linguists remain difficult problems. Through monumental efforts, the Defense Mapping Agency, CENTCOM, and Army Engineers produced and distributed maps, but they came late and caused considerable consternation. Linguists, too, were in short supply. The Army reserve

component and Kuwaiti students reenforced MI units. They provided superb support. Both maps and linguists require further addressal.

We brought together all Corps and Division G-2s and MI Brigade Commanders to develop the major lessons learned on intelligence. We attempted, and we believe succeeded, in listing lessons which transcend this particular operation. A comparison of deployments over the past decade -- URGENT FURY, JUST CAUSE, and DESERT STORM, -- verified conclusions that while this was indeed a unique place and enemy, what we learned here has implication for Army MI in the future.

Ten IEW Lessons Learned follow:

- 1 - High quality soldiers and leaders made MI a success.
- 2 - Army IEW requires its own communications system.
- 3 - The Army needs to develop an imagery architecture to provide near - real time photography to commanders from Corps through Brigade. We must also emphasize the requirement for wide area, high resolution imagery.
- 4 - The UAV and JSTARS performed magnificently. Fund and field soonest.
- 5 - We need to balance MI units at Corps and Division with SIGINT as well as HUMINT and IMINT.
- 6 - IEW doctrine requires some refinement to include:
 - Adopting the IEW Synchronization Plan methodology;
 - Revamping our approach on how to analyze;
 - Linking collection with production closely;
 - Reviewing placement of the Technical Control and Analysis Element; and
 - Cross Training.
- 7 - Echelon Above Corps, theater Army intelligence played a crucial role in DESERT STORM. It sealed the EAC-ECB gap and verified the doctrinal relationship of the G-2 and MI Commander.
- 8 - The EAC Brigade can be a contingency force multiplier. It must focus downwardly integrating its operations with Corps.
- 9 - Army operations require Army intelligence support.

10 - The MI reserve force served well, especially as individuals to reenforce.

Conclusions:

IEW functioned as a very effective battlefield operating system. The ingredients: an MI team effort, quality and trained soldiers and leaders, a focus downwardly, and an integrated IEW communications, computer, and collection system driven by a Synchronization Plan.

OPERATION
DESERT STORM
THE MILITARY INTELLIGENCE STORY:
A VIEW FROM THE G-2
3D U. S. ARMY

DESERT STORM is a major historical event. Indeed, historians of all fields will write for years, perhaps decades, on what was done here and what resulted from it. DESERT STORM made history for Army Intelligence, as well, and it may set the foundation for new ways to conduct tactical intelligence operations in the future. Military Intelligence succeeded in DESERT STORM. It is unclear now just how well MI did, but I believe that accurate, timely, and continuous tactical and operational intelligence will eventually be recognized as a major factor in the complete success of this operation and in the unprecedentedly low casualties suffered by Army forces.

MI FIRSTS

- o Deployed
 - 7 Divisional MI Bns
 - 3 MI Bdes
- o Fielded
 - UAV
 - JSTARS
 - IEW Commo
 - Automation

MI FIRSTS:

The Gulf War represented many firsts for Army MI. We fielded fully manned and equipped MI Battalions of seven Army divisions--two light and five heavy. Three MI Brigades operated here--two Corps brigades and one in support of field Army. For the first time, an unmanned aerial vehicle flew in support of Army forces in combat. The Joint Surveillance and Target Attack Radar System (JSTARS) also supported combat operations. While both systems are prototypes now, they proved their immeasurable value to commanders. We also deployed several

Intelligence communications and computer systems which provided reliable intelligence dissemination, including spot imagery, from national to tactical levels.

Quality people provided the major impetus for the success of MI in this operation. MI captains manned over 90 percent of the combat battalion S-2 positions. Majors or promotable captains were at brigade S-2. We had a fine group of Division G-2s. Their commanders expressed great confidence in them. The Corps G-2s were both experienced professionals, who worked tirelessly to orchestrate complex intelligence operations. MI Warrant Officers, NCO's and soldiers supported with great professionalism, dedication, and pride. The ARCENT G-2 had the best group of professionals with which I have ever worked. They came from everywhere in the Army, the DA staff, Intelligence and Security Command, U.S. Army Intelligence Center and Fort Huachuca, the Defense Intelligence Agency, various joint and Army Headquarters, and numerous Corps and Divisions. They came from assignments in the U.S., Europe, Korea, Panama and Turkey, and several came from the civilian sector arriving here as members of our reserve component. We enjoyed also the professional contribution of government and contract civilians who demonstrated loyalty, dedication, and duty which one expects from soldiers. Their service was magnificent.

As you read the history of Army Intelligence in DESERT STORM, several things will jump out at you. This was an Army MI Corps effort. We will not bore you with false modesty and made-up humility. There was a need to lead the effort, to bring disparate parts together, and to focus on the task at hand--precise intelligence for warfighters. ARCENT G-2 accomplished that. We could not have done it, however, without the major support we received from the MI Corps. Whether people, systems, or substantive intelligence support, we got what we asked for--no delay, no second guessing. Many deserve our gratitude for this. Those we mention here led the great support effort: LTG Charles B. Eichelberger, DCSINT; MG Jerome H. Granrud, DCSOPS-FD; MG Paul E. Menoher, Jr., CG USAIC-FH; MG Charles F. Scanlon, CG INSCOM; BG William H. Campbell, PEO-IEW; BG Sam A. Gray, J-2 FORSCOM; and Colonel(P) Patrick M. Hughes, CG, Army Intelligence Agency. Of course, the tremendous team effort could not have been carried off without BG John A. (Jack) Leide, who led the entire joint intelligence effort here as the J-2, CENTCOM.

PURPOSE & SCOPE

- o MI Challenges
- o Lessons Learned

This history is written from the view of the G-2, Army Forces Central Command (or 3d U.S. Army). There are many other viewpoints and experiences from this operation, and I trust we will read and hear about them in the future. This paper, however, attempts to cover two broad areas: Challenges of Army MI as seen from the Field Army perspective, and broad lessons learned as developed by the Division, Corps, and ARCENT staffs and G-2s. I do not attempt to cover all subjects pertaining to MI, certainly not those better left to those who lived the action at battalion, brigade, and other levels of command. We await the wisdom of their experience.

CHALLENGES

- o Build trust with commanders
- o Provide Linguists
- o Develop and field an IEW Architecture
- o Build the ARCENT G-2 and Army MI Team

CHALLENGES:

The reader will also note through this history that our biggest challenge was to set the IEW team and system for the War that loomed in early 1991. Prior to December, the ARCENT IEW G-2 team remained small, tailored to a defend and deter mission in Saudi Arabia, in support of a one-Corps Field Army. Moreover, that Corps (the XVIII Airborne Corps) had a very capable intelligence organization of its own, more capable than ARCENT's, itself. In December, however, things changed. As a result of the U.S. Presidential (and coalition) decision made in November to add an offensive element to CENTCOM's mission, Army forces in Saudi Arabia received reenforcement, namely the VII U.S. Corps. This placed demands on ARCENT IEW, and a significant metamorphosis occurred. The focal point of intelligence operations shifted from the XVIII Airborne Corps to ARCENT G-2.

What this meant operationally was that ARCENT G-2 had to accomplish numerous tasks in the short period between mid-late

December and mid-January when presumably the war would begin. As it turned out, the ground war began on 24 February. While this gave us more time to support ground operations, we were deeply involved in targeting for the air campaign in the Kuwaiti Theater of Operations from 17 January onward.

ARCENT G-2 worked on several major tasks simultaneously to prepare for an attack we all knew would happen. We immediately focused on building trust with Corps and Division commanders. They were not satisfied with intelligence, did not believe they were receiving appropriate support or the attention of intelligence, and they wanted imagery, photographs of enemy positions. A second challenge we faced was to provide linguists to the Corps and the 513th MI Brigade so they could accomplish their intelligence missions. Thirdly, as a result of on-going actions and the need to enhance intelligence communications, computer, and collection capabilities, we needed to develop an IEW architecture, to link ARCENT with CENTCOM and the Army Intelligence Agency, and to link ARCENT and Corps and Divisions together. Moreover, we expected the arrival of several major systems--the UAV, JSTARS, TROJAN, DODIIS, HAWKEYE (computer), to name a few--and we had to provide smooth fielding as well as integration into the overall architecture. A fourth challenge involved building an ARCENT G-2 team. In late December, ARCENT G-2 and the Echelon Above Corps Intelligence Center, 513th MI Brigade, had few people, mostly of lower rank. They were good, but they lacked experience. ARCENT G-2 simply could not support Third U.S. Army in combat with the capabilities at hand. Moreover, G-2 operations then tended to be disjointed, so we immediately took control of the Echelon Above Corps Intelligence Center (EACIC) and integrated G-2 staff sections with it. This fostered unity of effort. We also brought in experienced people, nearly doubling in size, but more importantly, maturing the staff significantly. This team building period took longer than hoped but probably transitioned faster than we could expect. The leadership challenge during this period (January) was to instill a sense of immediate urgency in the entire G-2 staff. We did that, but not without concern and a little pain.

DESERT STORM, of course, was a U.S. joint and U.S.-coalition combined operation, and we at ARCENT G-2 worked hard to ensure we were part of the team and responded to the coach--the CENTCOM J2. I met with the J-2, BG Jack Leide, almost daily during January and February before G-Day. He, in turn, provided a superb liaison officer who in fact became part of ARCENT G-2 as much as he was from CENTCOM J-2. CENTCOM and ARCENT coordinated all intelligence judgements fully and published no estimate that was not fully agreed upon. All intelligence operations and policy were carefully coordinated. We worked closely with CENTAF and MARCENT, also exchanging liaison elements and coordinating

intelligence requirements. We received CENTCOM J-2 support totally, and in turn we operated under J-2's guidance and in turn the CINC's approval.

Liaison was another crucial aspect of this joint operation. We had liaison teams, mainly in the form of Intelligence Support Elements (ISE's) from the 513th MI Brigade, or MI officers organic to ARCENT G-3's liaison teams with coalition forces, Corps, and the theater reserve (1st U.S. Cavalry Division). We established ISE's with CENTCOM, all service components, and with Corps. We also had with us liaison officers from CENTAF, MARCENT, and the United Kingdom. These liaison elements and individuals performed myriad, invaluable functions, especially in identifying problems, exchanging intelligence, and keeping communication open between higher and lower headquarters as well as laterally. Our ISE at CENTAF, for example, numbered nearly 20 people and served to coordinate the Army Intelligence aspects of targeting through ARCENT's Battlefield Coordinating Element.

MOST IMPORTANT OBJECTIVE

Focus Intelligence Downwardly

FOCUS INTELLIGENCE DOWNWARDLY:

The single most important objective during the period immediately prior to DESERT STORM and before G-Day (24 February 1991) was to focus all intelligence endeavors downwardly, and from the ARCENT view, that was on the Corps, and through it to the Captains, Lieutenants, and Sergeants who fight the war. During peacetime, much intelligence tends to be academic. In Washington, it supports "the policy maker." In Army units in peacetime, it informs commanders and supports contingency plans. In exercises, it often supports training objectives which tends to make it less than realistic. In DESERT STORM, intelligence was real. It was a vital battlefield operating system, but the crucial link between what the XVIII Airborne Corps and VII U.S. Corps Commanders wanted and the intelligence provided did not come about automatically or easily. It took leadership and great team effort. The system to provide specific intelligence for specific purposes had to be established, and that was a very complex task, indeed.

THE CHALLENGES IN A TOP-DOWN INTEL APPROACH

- o Finite Collection Systems
- o Competing Requirements
- o ARCENT Intelligence Team in Transition
- o Communications and Computer Links
- o IEW Synchronization Plan
- o Producing TAC Intel from above
- o Dissemination
- o "Lucky TAC" (3d Army Forward)

BUILDING THE SYSTEM - THE CHALLENGES:

FINITE COLLECTION SYSTEMS:

First, intelligence collection assets were finite, and the enemy made them even more limited, because he did not use the radio much. Through DESERT SHIELD and until just before G-day in DESERT STORM, we had very limited HUMINT (unit line crossers arrived beginning in February). Thus, we relied on imagery, which was limited by weather and capability. We could take wide angle, blurry photos or spot, clear photos. The former severely hampered accuracy. The latter provided clarity of picture but muddled our full comprehension of the battlefield. It was like viewing a football game from the Goodyear Blimp with the stadium and city in view and then switching to a line-backer through a high powered, stationary telescope. There was not much in-between. Theater imagery collection did have wider imagery capabilities, but it also was limited by the lack of hard copy processing capability until about 10 January 1991 when the Joint Imagery Processing Complex (JIPC) became operational.

COMPETING REQUIREMENTS:

Second, we had competing requirements, many of them from the Corps themselves. During the two months before G-Day, we had to provide Indications and Warning of preemptive action by the Iraqis, develop and validate targets, assess battle damage--a big user of imagery--and maintain precise composition, disposition, and strength of tactical defenses, operational reserves, and theater reserves for campaign planning and operations. With multiple number one priorities over an area the size of Montana and with competing requirements from other components and national decision-makers, we did not satisfy everyone, all the

time. We did, however, focus on the Corps and their main efforts.

INTELLIGENCE TEAM IN TRANSITION:

Third, as described earlier, the intelligence team at ARCENT level was just building during the December-January period, at the very time when the Corps demanded increasing volumes and levels of detail of intelligence. We indeed were in a transition period. The JIPC developed its imagery receive and processing capabilities, organized itself, and trained its soldiers. We, in turn, established links to national, CENTCOM, and Army Departmental intelligence and imagery. ARCENT also came to manage Army theater and garner support of joint theater and national collection. We created a dissemination capability--by electronics and courier alike--out of whole cloth, and we directed the production of (from AIA) and produced, ourselves, tactical-level intelligence. By 1 February, we became capable of responding to Corps needs. By then, Third U.S. Army G-2 led theater Army intelligence and became a full member of CENTCOM's Joint Intelligence team. The start-up in January was rocky, but we moved quickly to develop an intrinsic field Army intelligence capability.

COMMUNICATIONS AND COMPUTER LINKS:

Fourth, we had to provide connectivity in order to transmit intelligence requirements and responses (including imagery) rapidly. We began by building a communications and computer link (called DODIIS) directly into the Army Intelligence Agency (AIA). This gave us on-line computer access to data bases in AIA and the Defense Intelligence Agency (DIA), and it gave us the capability to transmit a relatively high volume of imagery from the AIA to ARCENT. Next, we established communications, computer, and imagery links with Corps and Divisions. Special teams of officers and technicians from INSCOM, USAIC, and PEO-IEW helped us deploy TROJAN (for digital and secure voice satellite communications) to Corps and Divisions and Army Space Program Office-Secondary Imagery Dissemination System (ASPO-SIDS) (for imagery receive capability) to VII U.S. Corps and its divisions. XVIII Airborne Corps used its authorized TENCAP Tactical High Mobility Terminals and other systems to link with downlinks at Fort Bragg for its digital imagery support. This IEW communications system connected Army tactical commanders from remote areas in Saudi Arabia and Iraq with ARCENT and AIA in Riyadh and Washington, DC, respectively. It was this entire system that allowed us to focus national and theater intelligence on the needs of Corps Commanders and on fulfilling operational and tactical intelligence requirements.

IEW SYNCHRONIZATION:

Fifth, a system is useless unless one uses it properly, and we developed a means to do that. Called the IEW Synchronization Plan, it focused on precisely what intelligence each Corps Commander needed and at what time. From that Corps milestone, we backward planned how we would get the intelligence to the commander--dissemination--what production and processing steps we needed to take, and what collection we required to produce and disseminate the deliverable, or key read, as we called these crucial intelligence judgements. We planned on work arounds for poor weather, dissemination failures, and other unforeseen, but inevitable problems. ARCENT G-3 developed the 3d Army plan and crafted a matrix to show key decision points in the battle (e.g., when the CENTCOM reserve should be committed). In turn, G-2 worked hand in glove with G-3 to synchronize intelligence at each crucial decision and act. Moreover, I spent hours with Corps Commanders and their G-2/3s learning their plan and understanding their intent. We made numerous trips to Corps to coordinate the IEW Synchronization Plan. We coordinated it in detail with components and with CENTCOM, especially the CENTCOM Collection Manager. Since plans usually change once an operation begins, we built flexibility into this one.

We began developing the ARCENT IEW Synchronization Plan on 16 January when the Corps ground campaign plans had jelled. We had the final IEW Synchronization Plan finished by 15 February, and we began its execution on G-7 (or 17 February) to provide precise composition, disposition, and strength of enemy forces at the breach areas, to include the exact number of artillery tubes which could range the breach. During the period, G-7 through G+4 (28 February), we sent out 27 "Desert Read" messages which described each key read or assessment of enemy probable courses of action during the period of war. Each assessment was based on precise intelligence questions required by the Corps Commanders. We also sent other intelligence products: annotated imagery of breach sites, mosaics of objective areas, template overlays on 1:50,000 maps of enemy units at the breach and in reserve, periodic analytical reports (INTREPS) that described enemy actions, to name a few. The commanders' response during an ARCENT After Action Review at King Khalid Military City on 12 March 1991 can be summarized as follows:

"The enemy was exactly where intelligence said he was, disposed as intelligence described; there were no surprises." "Tactical intelligence was superb."

This unique IEW Plan and the communications and computer system that allowed it to be implemented made the intelligence aspects of Airland Battle a reality in this Gulf War. Taken as a whole, what we did here was to focus all intelligence, from national, theater, and operational levels on the operational and tactical commander and on his close and deep battle. We eliminated the so-called Echelons Above Corps and Echelons Corps and Below divide and made intelligence a combat operating system with one purpose: to support combat operations with intelligence how and when commanders wanted it.

TOP DOWN APPROACH:

A sixth challenge involved how to provide tactical intelligence to combat commanders. Doctrine says intelligence responsibility in the Army lies at each level of command. The battalion S-2 plans his collection, focuses his analysis, and disseminates his intelligence based on his commander's requirements. The S-2 may need help--from collection assets at brigade, division or even corps--but he provides tactical intelligence tailored to his battalion commander's priority intelligence requirements. This basic pattern repeats itself through each command level--theoretically. In DESERT STORM, tactical intelligence mainly came from above, and until units closed with the enemy, that is how it was. Even after G-Day, the attack was so fast that it was largely the intelligence that had been provided from Division, Corps or field Army (or higher) and some quick battlefield surveillance that guided the operation. This was so mainly because units were held from the border out of range for their tactical intelligence capabilities. Even with the Corps MI Brigade flying SLAR and SIGINT missions daily, the intelligence taken from those systems alone was insufficient. Furthermore, since Echelons Above Corps systems arrived piecemeal and late--ironically given the dependence on their collection and production capabilities vice the tactical systems--it was imperative that national collection and departmental production (read the Army Intelligence Agency) focus on tactical intelligence.

In August and September AIA concentrated on helping deploying units familiarize themselves with the basics of the Iraqi enemy--producing an unclassified "How They Fight" pamphlet and technical intelligence on equipment capabilities. By October and November, AIA was deeply involved in producing templates of enemy divisional defensive positions on 1:50,000 maps and a multiple volume encyclopedia of the Iraqi threat, which included order of battle, tactics, weapons systems, medical intelligence, and chemical and biological warfare capabilities. These were the early stages of AIA's later, full dedication to tactical intelligence production for DESERT STORM. That full AIA effort included many successes which we will cover later in this history.

Another aspect of this challenge of providing top down tactical intelligence for the Corps and their subordinates concerned the need to define what the Corps wanted. There is a system to do this, but the system was broken. Corps, Divisions, Brigades, and Battalions use their Commanders' Priority Intelligence Requirements (or PIR) to focus intelligence on their appropriate units' mission needs. In turn, they ask higher headquarters in the form of Requests for Information (or RFI) to fill in the blanks. In early January, we reviewed RFI held by Third U.S. Army for the two Corps here. Of the 400 plus RFI, there were 20 that applied to the Corps Commanders' stated campaign needs. The others were extraneous. Perhaps they held some importance at one time or another, but they largely fell into the category of academic curiosity rather than direct intelligence for operations plans, which were imminent in execution. Nevertheless, ARCENT was busily directing limited collection platforms and scarce analytical efforts toward answering these less-than-useful RFI.

DISSEMINATION:

A little known or understood task in intelligence is dissemination. Clearly, any basic course graduate with a gold bar knows that if a commander does not receive intelligence in time, it is worthless. Dissemination, as it turned out, was the achilles heel of MI. For starters, the normal intelligence communications system (AUTODIN) was overloaded, and it stayed that way throughout the operation. Immediate reports arrived in 12-hours. Too many bogus RFI's helped cause that, but there were other reasons. In short, the established communications system could not support requirements of intelligence. To answer that, we developed the IEW Communications System, which worked superbly.

As we kick started the annotated imagery print production system, produced templates, overlaid maps and photomaps, and

other hard copy products, we had to develop a courier dissemination system, out-of-hide and learn-as-you-go. Of course, the Army has done this kind of creative, innovative work since its inception, but if dissemination is a real need, and it appears that it is, we must structure ourselves for it. In the end we distributed about 200 pounds of products daily during January and February over distances approximating those from San Francisco, to LA, to Las Vegas, Reno, and back to San Francisco. We encountered every problem; delivery at the wrong unit, arrival at the wrong airport, inadequate numbers of copies at one spot and too many at another. We fielded ASPO-SIDS to facilitate timely digital imagery dissemination, and that or something like it is a partial answer to imagery for tactical commanders. Through it all we never totally solved the dissemination problem. We probably provided too much to some units. We were definitely late at times. But intelligence did arrive, and commanders had it in their hands when they needed it.

LUCKY TAC:

ARCENT sent a Forward Headquarters to King Khalid Military City (about 80 kilometers south of the Iraqi-Kuwaiti-Saudi Arabian tri-border area) in mid-January. The "Lucky TAC", as it was called from General Patton days, provided an invaluable service. It enabled us to communicate face-to-face with Corps and Division commanders and senior staff and to solve problems quickly, "on-the-ground." The G-2 operation at Lucky TAC focused on solving intelligence problems. We employed a small ISE to the TAC and an equally small G-2 operations staff element. They kept the TAC Commanding General abreast of the enemy situation and responded to his and the TAC staff's intelligence requirements. The principal member of the G-2 Lucky TAC team was the ARCENT Deputy G-2 Forward, an MI Colonel with extensive tactical intelligence experience as a G-2, J-2, and MI Brigade Commander, a hand-picked officer indeed. He visited the Corps nearly daily and facilitated myriad intelligence operations. Specifically, he helped solve the thorny issue of dissemination of hard-copy imagery, and he mainly solved problems before they appeared. This Lucky TAC G-2 operation was absolutely vital to our providing timely tactical intelligence to the Corps.

Once the battle ended, Lucky TAC moved to Kuwait City to lead for CENTCOM the restoration effort there. This included, from the intelligence perspective, force protection, liaison with the U.S. Embassy and host nation, document retrieval and summary exploitation, and foreign materiel retrieval. This was a whole separate intelligence challenge in itself, something about which we will write in subsequent chapters to this history.

CRITICAL SUPPORT

- o Army Intelligence Agency
- o DIA - Joint Intelligence Center
- o United States Army Intelligence Center & School
- o United States Intelligence and Security Command
- o J-2, United States Forces Command
- o Program Executive Office - IEW
- o 30th Engineer Battalion (TOPO)
- o Joint Imagery Processing Complex (JIPC)

CRITICAL SUPPORT:

ARMY INTELLIGENCE AGENCY:

AIA's support to DESERT STORM was absolutely critical in the intelligence success here, and it was from AIA that we received the overwhelming bulk of timely, usable tactical intelligence. What we did in early January was not only to integrate ARCENT G-2 and the EAC Intelligence Center (513th MI Brigade) but we also tied AIA inextricably to ARCENT. It was as if the entire Army Intelligence Agency placed itself in direct support of ARCENT, and it did. We did this through various means. AIA sent several key people to augment the ARCENT G-2 operation. One led a team of communications and computer experts who established the DODIIS links into AIA and interconnected ARCENT with Corps. This was absolutely essential to make the top-to-bottom intelligence operation work. Another key person organized the entire ARCENT dissemination element and effort, a monumental task. Others worked at both ARCENT and CENTCOM to organize procedures for prioritizing and, more importantly, receiving support from national imagery collectors and processors. This AIA imagery team also made several trips to the national capital region to explain in detail our imagery needs and to courier high resolution, annotated photographs and other special products to ARCENT. Their in-depth knowledge of the national system and agencies was invaluable.

Another way in which AIA supported ARCENT was through producing intelligence, itself. As we tied ARCENT and AIA closely together in January, so we began to focus more precisely AIA's efforts on the coming ground war. We began with the breach areas. We asked AIA to provide detailed, tactical templates with annotated imagery of each breach area, and we required a daily message to update the templates. The baseline

templates arrived on 12 January and were delivered to Divisions on 15 January. The message, labeled "Orient Classic," became the authoritative intelligence product on detailed enemy disposition in the breach areas and elsewhere. Later, we expanded the template requirement and that of "Orient Classic" to cover enemy units in operational and theater reserve and in tactical defensive positions deeper in Iraq than the breach areas; e.g., the 45th Infantry Division at As Salman.

AIA also became the main support for annotated national imagery, sent over ASPO-SIDS or by courier, and provided numerous special products. The single, most important and acclaimed intelligence product (by commanders at all levels) was the tactical template. Anecdotes told by Commanders and G-2s demonstrate the accuracy, and more importantly, the great value of the templates. In one story, told by the Division G-2 operations officer of the 3d Armored Division, lead U.S. tanks fired on tanks of the Tawakalna Republican Guards Division from over 3000 meters range by sighting enemy tanks using thermal optics as identified precisely by the associated template. This kind of action was made possible by the Global Positioning System (GPS), an off-the-shelf item that gave each tank its precise location. In a message, VII U.S. Corps told how the 1st UK Armored Division praised the detailed accuracy of the template of the 12th Iraqi Armored Division and how it helped the British attack. The Commanding General, 24th Infantry Division (M), told me that in his attack on the Republican Guard Divisions vicinity the Rumalya Oil Fields west of Basrah, the templates and "Orient Classic" messages had so accurately located enemy artillery, he was able to hold his forces out of range and destroy Iraqi artillery positions with the intelligence at hand. These and numerous other written and oral comments attest to the value of tactical intelligence produced.

By the way, template production was a major team effort. Once we established reliable satellite communications between ARCENT and AIA, we transferred template overlays digitally. We then moved the computer tape to the 30th Engineer Battalion (Topographic), which produced "proof" quality overlays and overprinted them on 1:50,000 scale maps. In turn, ARCENT G-2 moved these maps via air and ground to forward units. Once the templates were at Divisions, Brigades, and Battalions, "Orient Classic" updates allowed G-2 and S-2 staffs to "move the pieces" on their maps and retain daily intelligence on detailed enemy disposition. We point out these other steps in this intelligence challenge besides producing the templates--i.e., over-printing and disseminating them--because these tended to be the tasks most difficult to accomplish without continuous leadership, prioritization, and attention to detail.

AIA performed myriad other support functions for G-2 ARCENT to include: responding to complex RFI, producing special assessments; providing technical art drawings of urban areas; coordinating Foreign Materiel and Technical Intelligence actions and priorities, and maintaining a 24-hour a day support operations element, with a continuous, high sense of urgency, as a "one-stop-shopping" point of contact for all intelligence support from whatever national intelligence agency it might come.

DIA - JOINT INTELLIGENCE CENTER:

The DIA-JIC served as another major player in intelligence support here. DIA formed the JIC in August 1990 from several intelligence elements. Team Army, of about 45 soldiers and officers, came from AIA's Intelligence Threat Analysis Center (AIA-ITAC). It was this team of ground intelligence experts which had produced an Army-level Intelligence Summary (until the JIC formed). That INTSUM received rave reviews from deploying Army forces at the time. Fortunately, we were able to transfer that experience and professional competence to the Joint Intelligence Center where Team Army's portion of the DIA product, Military Situational Summary (MSS) served Army units well. While Team Army served under DIA's operational control, they responded directly to ARCENT requirements. From D-day (beginning of the Air Campaign) onward we maintained an open secure telephone line into the DIA-JIC. We used it to validate targets, verify situations, discuss indicators, and request support. Team Army maintained a high sense of urgency and support. They always came through. Their calls were right, timely, and clear. In my view, the DIA-JIC was a good model for other like organizations -- organic Army intelligence professions, under Army command, in a joint setting, operationally controlled by the joint senior intelligence officer. In the case of Team Army in the DIA-JIC, they could and did avail themselves of the resources and professional capabilities of AIA in its entirety, a great advantage indeed.

USAIC, INSCOM, J-2 FORSCOM AND PEO-IEW SUPPORT:

Other examples of the total Army MI team effort in DESERT STORM were efforts by the U.S. Army Intelligence Center, U.S. Intelligence and Security Command, J-2, U.S. Forces Command and Program Executive Office-IEW. USAIC and INSCOM sent people and critical equipment to ARCENT and CENTCOM. The Unmanned Aerial Vehicle Platoon and system, the Ground Station Modules from Joint STARS, the TROJAN communications system, and the Hawkeye computer system (for collection and production) were some of the systems fielded, managed, and manned through USAIC and INSCOM's direct support. INSCOM also augmented the Intelligence Center with

experienced officers and NCOs, enhanced SIGINT collection, and provided direct logistics support to the 513th MI Brigade. J-2 FORSCOM provided continuous, expeditious support in deploying MI units and teams and in orchestrating funding and staff management for major parts of our IEW Architecture. USAIC and PEO-IEW also reenforced the ARCENT G-2 staff with experts to oversee operations, training, and logistics of the myriad systems fielded. For their part, PEO-IEW pushed logistics support and provided the point of entry for any kind of materiel problem we faced. It was this kind of MI team effort that helped make the operation a success.

THE 30TH ENGINEER BATTALION (TOPO) SUPPORT:

As mentioned above, the 30th Engineer Battalion (Topographic) provided invaluable support for the ARCENT intelligence operation. The "30th TOPO" (as we called it) was in direct support of ARCENT G-2, and the Battalion responded magnificently to high pressure requirements. Of course, it printed templates, but 30th TOPO experts did much more than that. They provided 1:12,500 and 1:25,000 scale photographic maps with enemy barrier and unit dispositions overprinted. These products went to platoon level to provide precision to and confidence in the junior leaders who were the first to face the enemy. We received wide acclaim for this effort. The Battalion also provided superb terrain analysis support, both before it deployed (while at Fort Bragg, NC) and once it arrived in-country. Indeed, the 30th TOPO was an invaluable member of the ARCENT G-2 team.

JIPC SUPPORT:

The Joint Imagery Processing Complex, or "Gypsy" as we pronounced the acronym JIPC, provided unique and valuable theater imagery support. The JIPC arrived late in theater, but what it gave up in timely arrival it more than made up in value added. First on structure, the JIPC organized itself uniquely. Under CENTCOM's operational control, each service contributed units to the JIPC, and the services retained command as well as direct access to their own elements. The original design of the JIPC focused on a receive capability from national imagery. The JIPC was to pull in national photographs, develop, process, and annotate them, and disseminate to user units. That system worked as planned, but the JIPC became, in fact, the primary provider of theater imagery. It was the latter mission of the JIPC that contributed most to Army requirements of target development, battle damage assessment, and support to Corps with annotated photographs and mosaics. The JIPC, therefore, could bring in national imagery digitally--though that was limited to about 50 frames daily due to a reduced satellite path--but its main role

was reading, annotating, reproducing, and disseminating theater U-2 derived imagery.

The 513th MI Brigade's 17th MI Company served as the Army's contribution to JIPC and a major contribution it was. The 17th MI Company came in with about 75 photo-interpreters, a fine leadership element, and much equipment. The company set itself up in less than 48-hours and began reading photography. Because of the unique characteristics of JIPC--a joint organization with consolidated service units--ARCENT G-2 worked through CENTCOM to establish direct tasking of the 17th MI Company. That worked superbly. The 17th set up teams of photo-interpreters which concentrated on specific ARCENT requirements of direct importance to the Corps--e.g., a breach team, a 45th Iraqi Division team (the first enemy organization to face XVIII Airborne Corps), target development teams and a BDA team. Soldiers of the 17th MI Company came to know their specific enemy and piece of terrain and their product reflected it. It was this MI Company that provided the annotated imagery which the 30th TOPO reproduced as maps for breach operations. The Company also produced a detailed mosaic, in multiple copies, of the road up which the XVIII Airborne Corps made its attack through As Salman. The mosaic included detailed enemy disposition. Moreover, each Corps objective area--in both Corps--was covered with detailed annotated imagery within 48-hours of the attack.

This JIPC operation should serve as a model for the future. It provided crucial intelligence. Probably as importantly, it provided, also, a means for commanders to articulate their specific requirements. Because of the direct access afforded ARCENT to the JIPC, we encouraged Divisions and Corps to send liaison elements to the EACIC and to the JIPC, as well. This enabled clear commander intent to be translated to the key elements that provided tactical intelligence in theater. ARCENT G-2, of course, validated requirements to ensure a focus of key priorities, but we were able to serve unit needs. This kind of Army imagery processing capability--the 17th MI Company--is a treasure we must preserve and nurture. We need to develop ways to continue support to tactical units once we return to home base, and we must broaden the unit's training to include air breather as well as national imagery processing capabilities. The latter was a train-up challenge which we might have avoided. In sum, the JIPC provided a vital capability to Army operations. We need to learn from that.

In the final analysis, then, much intelligence came from above throughout DESERT SHIELD and STORM. Once we established capabilities and interconnectivity (about 1 February), intelligence began to flow down to the combat units. Moreover, the IEW Synchronization Plan provided focus for the ground

campaign. This entire system succeeded in harnessing the power of national and theater intelligence, both collection and production, in support of ground tactical commanders. It worked, but there is much work left to do to take what we learned here and to institutionalize appropriate elements of it for the future Army.

INTELLIGENCE OPERATIONAL CHALLENGES

- o Targeting
- o Battle Damage Assessment
- o Arabic Linguists
- o Maps

OPERATIONAL CHALLENGES:

Before I discuss the major lessons learned from this operation, allow me to describe several other challenges we faced which had great impact on IEW operations here and which hold lessons for us.

TARGETING AND BATTLE DAMAGE ASSESSMENT:

Targeting and Battle Damage Assessment posed another major challenge for ARCENT G-2, especially during the period from mid-January through G-Day. CINCCENT established specific goals for the air campaign in the Kuwaiti Theater of Operation (KTO) (below the Euphrates River), and these guided our targeting effort throughout. The goals included reducing Iraqi armor and artillery by 50 percent, overall, and artillery by 90 percent in breach areas, eliminating Iraqi command and control and intelligence capabilities, and restricting severely Iraqi logistics. The air campaign, itself, had three phases. Phase I was mainly a strategic effort, attacking, inter alia, Iraqi production and storage of chemical, biological and nuclear weapons, national-level command and control, lines of communications, especially bridges, and short range ballistic missiles. During this strategic air campaign, the Republican Guard Forces in the KTO received priority, also. Phase II attacked Iraqi air defenses in the KTO, and Phase III concentrated on attrition of Iraqi ground forces.

As it turned out, the outlines of that plan were followed, but several changes took place. One big factor which delayed full attention on Iraqi ground forces in the KTO for about a

month after D-Day (17 January 1991) was the SCUD hunt. SCUD attacks were of very little impact militarily but they potentially had major political overtones which could threaten coalition unity. Thus, CENTCOM diverted about 40 percent of its sorties after D+7 (when they had planned to concentrate on ground targets in and near Kuwait) to SCUD busting. As it turned out, the Patriot Air Defense System, Israeli restraint, and air and other attacks on the SCUD's turned their use into a political asset for the U.S. and coalition and a liability for Saddam Husayn. The ineffectiveness of the SCUDs symbolized his failures.

ARCENT G-2 had two missions during the air campaign: develop and validate high value targets in support of COMUSARCENT's and CINCCENT's priorities and provide timely, accurate BDA on Iraqi ground forces in the KTO.

TARGETING:

In close, continuous teamwork with ARCENT G-3, we developed an overall targeting campaign plan, a target development and validation planning cycle, and a means to nominate accurate targets, daily, in concert with the campaign plan. Our procedures at ARCENT matched doctrine. G-2 provided high value targets to G-3, who in turn decided on and nominated high priority targets to the Air Force, which was to attack high pay-off targets. The G-2 and the G-3 principals met daily for about two hours, to coordinate the targeting effort. The meeting included key members of G-2 (intelligence collection, BDA, production, deep targets) and of G-3 (deep targets, battlefield coordination element--ARCENT's direct link and liaison with CENTAF).

We planned the targeting cycle four days in advance in order to direct myriad imagery and signals collection assets and to provide the time necessary to develop accurate target descriptions and locations to fulfill G-3 target priorities. Our system worked well, but at first we were not quite in synchronization with CENTCOM and CENTAF. Due to operational necessity, target priorities tended to shift, often within the normal 72-hour cycle. This meant that intelligence collection and the resultant target development was sometimes out of synchronization. On those occasions, we often had limited targets, since we had neither focused intelligence collection on them nor had we the time to develop their precise location and disposition. Later in the air campaign, we built a more complete data base of targets, and this and other steps gave us more flexibility in handling changing priorities.

A second targeting challenge concerned imagery. In January, we had to rely largely on national imagery for targeting. Team Army in the DIA Joint Intelligence Center did a superb job in supporting our targeting efforts, but there were limitations. Without high resolution imagery--and we could not usually get that kind of support from national assets due to competing national requirements--we could not describe the target in detail (e.g., how deeply armor was dug-in, where it was exposed other than the top, whether it was a T-72 or a T-55). We relied on national imagery, because during the first three or so weeks of the air campaign, Iraqi missile air defense posed a threat to theater imagery aircraft, and they could not fly over targets. This delayed destruction of Iraqi air defense, as I understand it, was due because of the bleed-off of sorties from the KTO to the strategic campaign and SCUD hunting.

These limitations on target development--caused by late changes in target priorities and limitations on intelligence collection assets--made our execution in the first period of the air campaign in the KTO less than we had planned. Later, when theater imagery aircraft flew over targets and provided high resolution photography, the air campaign began to take a devastating toll on enemy units.

BATTLE DAMAGE ASSESSMENT:

ARCENT had the responsibility of assessing Battle Damage in the KTO and providing our assessment to CENTCOM. The reason went like this: if the ground campaign's initiation was to be determined by a point when air attacks had reduced Iraqi armor and artillery by 50 percent, then ARCENT should make that determination since the Army was to conduct the main attack. The G-2 was ARCENT's agent for BDA.

Battle Damage Assessment is an art, not a science, and it is an emotional issue. First on art: BDA would be easy if every time an air mission struck a target it was followed immediately by some imaging system. Then we could match a target struck with photographs taken, count the tanks, armored personnel carriers, or artillery destroyed, and sum up all such reports. It does not happen that way. Bad weather, enemy air defense, competition for imagery elsewhere and myriad other factors absolutely preclude that you ever follow a strike mission with imagery. In fact, imagery taken on targets struck usually lagged by days, not hours. In that time the enemy usually moved, replaced his losses, or took other steps to befuddle the BDA analyst. Moreover, even the best imagery interpreter with clear overhead photography has a hard time telling which tanks are broken and which are not. Of course, a tank turret off or askew is a dead giveaway, but most of the time it is not that easy. Usually, the

bomb crater next to a tank revetment revealed no apparent damage. Thus, we had to develop a formula and methodology for estimating BDA. It was this formula that caused some emotion.

We counted two factors for BDA: armored vehicles (tanks, mainly), and artillery. We used A-10 pilot reports, aircraft videos, and high resolution imagery. We counted one third of the pilot reports that labeled targets as destroyed, one half of the aircraft videos, and all reports of destruction from imagery. We used A-10 reports because A-10's usually fly in tandem, loiter longer, and A-10 pilots train in the close air support role. Because of weather, altitude (usually A-10 attacks were conducted at about 5-7,000 feet), and air defense, we factored in error. Aircraft videos worked well, but we deleted half of the apparent kills because subsequent imagery generally confirmed only about that amount destroyed. (During this period ((17 January - 23 February)) we also developed a formula that included other factors to determine enemy unit combat readiness. That equation, when figured in the aggregate, gave about the same estimate of enemy capabilities as our BDA.)

Emotion arose from two disparate actors, each at the far ends of a spectrum with ARCENT in the middle. On the one hand, the Air Force believed our BDA to be too conservative. The Air Force reasoned that their pilot reports, sortie rates, and overall effort must have been having greater and quicker effect on reducing enemy capabilities. On the other hand, national intelligence agencies, CIA and DIA, using national imagery largely, claimed our BDA to be too liberal. They estimated enemy strengths at the 80-90 percentile a few days before G-Day when we assessed them to be approaching the 50 percent range. During this entire period of the air campaign, we worked continuously with CENTCOM J-2, who was under great pressure from all sides to push the BDA one way or the other on a scale, depending on the critic. J-2 held its ground. Thus, no one really liked the ARCENT Battle Damage Assessment, but it was the best we had, and as it turned out, it was about right.

On 9 February, ARCENT among other components and CENTCOM, briefed the Secretary of Defense and the Chairman, Joint Chiefs of Staff. The purpose of their visit, as I understood it, was to develop a recommendation for the President on when the ground attack should be launched. The G-2 portion of the briefing for the Commanding General, ARCENT, included the Iraqi Army situation in the KTO, Battle Damage Assessment of Iraqi ground forces in the KTO, and an estimate of how the Iraqi military would defend against a coalition ground attack. During the BDA portion, we described trends in terms of sortie rates, weaponeering, and other factors which had brought various Iraqi units to specific levels of estimated capability. We had developed a curve, given

a level of sustained air operations, that led to a cross-over at which we would reach the 50 percent attrition mark for armor and artillery (with 90 percent artillery destruction at breach areas). The cross-over point was 21 February 1991. Consequently, and perhaps not coincidentally, the date for G-Day was set for 21 February (changed later to 24 February due to political maneuvers of mediation by the Soviet Union).

In the final analysis, then, our methodology for assessing Battle Damage contained some solid evidence and much military judgement. Given the state of the Iraqi military by 24 February, its inability to maneuver, its lack of intelligence and capability to control most of its forces, to name a few characteristics, our assessment came out fairly accurately.

ARABIC LINGUISTS:

Another significant challenge for ARCENT involved linguists, specifically providing sufficient arabic linguists with understanding of the Iraqi dialect to units for intelligence work. Arabic is one of the most difficult languages for Americans to learn. Defense Language Institute statistics prove that. Moreover, prior to DESERT SHIELD, Army requirements for arabic were significantly less than other languages, such as Russian. These two factors--language difficulty and priority--added up to less arabic linguists available than were needed for intelligence, let alone for civil affairs and basic interpretation purposes.

Another aspect of the linguist problem concerned distribution. Because the XVIII Airborne Corps arrived first and had arabic linguist positions documented in unit organizations, the Corps received nearly all of the Army's arabic linguist pool in the fall of 1990, active or reserve component. When VII U.S. Corps arrived it came with no arabic linguist capability whatsoever. Both Corps did deploy linguists of other languages, since soldier linguists are not just speakers, writers, or readers of other languages. They are actually operators of SIGINT and other systems, leaders of teams, and specialists in skills other than language. Without them, units could not have functioned, because they would have lost soldiers with critical technical skills and would have had to break up teams. Thus, we faced an inadequate supply of arabic linguists and a severe imbalance, with one Corps having all available U.S. arabic speakers in Saudi Arabia.

One answer to this problem of the shortage of arabic linguists came from our reserve component. Specifically, the 142d MI Battalion (Utah National Guard) deployed its arabic speakers early on. Due to linguist shortages in virtually every

unit and functional intelligence element, 142d soldiers served in both Corps and in the 513th MI Brigade at field Army level. They served as SIGINT interceptors and transcribers, prisoner interrogators, and language interpreters, and they served superbly. This is an outstanding example of reserve component MI capabilities and support.

A major response to linguist shortages--organized solely by DA, DCSINT--was to arrange for Kuwaitis to reenforce U.S. Army intelligence units. DCSINT moved a staff action paper through JCS and DoD, coordinated with the State Department, and worked with the Kuwaiti Embassy in Washington, DC. The Embassy recruited young Kuwaiti volunteers, most of them university students in the United States. INSCOM established a short basic training course that included common soldier skills and some technical intelligence training. By early January, about 300 Kuwaiti volunteers arrived, as sergeants in the Kuwaiti Army. Most went to VII U.S. Corps, about 100 to XVIII Airborne Corps, and a few each to MARCENT and to the 513th MI Brigade. Their performance and contribution was magnificent and immeasurable. They served mainly as SIGINT intercept operators but also helped with document exploitation and did some interpretive work. The term, "we couldn't have done it without 'em," comes to mind.

MAPS:

Maps, as in every other situation in which I have been associated, were a big issue. In August 1990, the U.S. government did not have enough updated maps of the right scale for either Saudi Arabia or Iraq. Commanders required maps immediately, for every kind of military planning effort and for deployment and maneuver. The Defense Mapping Agency (DMA) played "catch up" throughout the operation. While DMA made magnificent efforts and accomplished much, we simply have to come to grips in the future with a way to provide maps to deploying Army forces.

This problem of supply of maps tends to repeat itself continuously because of money and priorities. DMA receives its priorities from DoD and the JCS. With finite resources and time, DMA produces maps according to priority. Areas like Europe, the USSR, and the U.S. enjoy high priority, and DMA spends much in maintaining up-to-date map products on those high priority areas. Other areas, like South America, Mexico, and the Middle East have low priority. So if the U.S. Army were to deploy to Venezuela today on a counter-drug mission, for example, we most probably would go through exactly the same emergency to produce maps as we did here in the Gulf War.

Below this macro issue of priority, we experienced several problems worth describing. One involved map scale. During

November, ARCENT requested that DMA produce and deliver by mid-January 1991 to the theater map depot in Bahrain sufficient quantities of 1:50,000 scale maps to cover the operational area in Saudi Arabia and Iraq. With this specific guidance, DMA began production. To fulfill ARCENT's requirement, however, DMA had to stop producing anything else. DMA did that and answered ARCENT's requirement. Nevertheless, Commanders continued to request maps of 1:100,000 scale, which armor or mechanized U.S. units find more useful, with less bulk to haul.

Another problem here in theater concerned distribution. Not unlike the myriad other complex logistical problems posed by deploying nearly half of our Army here, map break-down and distribution was a big challenge. For starters, maps somehow did not fall within the transportation flow, so they required special priority and coordination each time shipments reached departure points in the U.S. Once they reached Bahrain, the theater map depot moved them quickly through its process to the Corps depots. It was there that the task of breaking down map-sheets for divisions was done. Again, competition for transportation from the Corps depot to divisions caused delays. Moreover, it seems probable that divisions received many more maps than actually required.

In the final analysis, there was much consternation over the inability of the "system" to provide maps when required, a legitimate concern given the import of the military operations. Easy fixes to the map problem are not available. One idea, probably not a new one, might be to decentralize map production to a certain extent, by using Army topographic elements. Whatever the solution, we probably need to readjust priorities since deployments over the last decade, at least, have taken us consistently to areas of high U.S. political but low mapping priority.

INTELLIGENCE SUPPORT TO CAMPAIGN PLANNING

- o Terrain Analysis
- o Key Estimates

CAMPAIGN PLANNING:

One final subject for this section of ARCENT G-2 view of the history of DESERT STORM concerns G-2 contributions to campaign planning. The ground campaign plan for DESERT STORM consisted of three main elements: a major move by two U.S. Army Corps

consisting of eight Divisions (equivalents) from the east coast of Saudi Arabia to attack positions well west of the Wadi Al Batin which forms the western border of Kuwait; a deception plan to portray our main effort as being an attack from the south mainly along the coast to take Kuwait City; and a main attack from the south and west to cut-off reenforcement or escape up the Euphrates River Valley and to destroy the Republican Guard heavy divisions, the Iraqi Army's center of gravity deployed along the Iraqi-Kuwaiti border west of Basrah. These three aspects of the ground campaign and the plan in which they resided posed major questions for intelligence, for in order to execute a campaign of this nature--one which took advantage of essentially an exposed enemy flank--commanders had to read the Iraqi enemy carefully.

TERRAIN ANALYSIS:

The first order of intelligence business was terrain, for if the ground in the west could not support our armor forces, we could not conduct a main attack from there. Knowledge of precisely the kind of desert we faced was sketchy. In the years in which we had official relationships with Iraq, not one military attache had apparently walked the terrain south of the Euphrates River to the Saudi Arabian border. If he had, someone had lost his reports. This speaks volumes about the importance of the basic kind of intelligence collection our Defense Attache system should carry out. We sent teams to the border area in the period September-November, studied satellite photos, and found comparable terrain in Saudi Arabia. From that we extrapolated information and developed a terrain analysis. The XVIII Airborne Corps used an intriguing technique. The Corps' terrain analysts compared terrain by type of vehicle--track, light wheeled and heavy wheeled--to develop go, slow go, and no go terrain. These analyses, plus other estimates provided by AIA and the U.S. Army Engineer Topographic Laboratory, concluded that the terrain would support large-scale operations, especially in an area from Wadi Al Batin about 120 kilometers to the west. Beyond that to the As Salman (Iraq), and Rahfa (Saudi Arabia) axis, terrain tended to slow and restrict movement in areas. This terrain assessment was quite accurate and it formed the foundation of the Army's ground campaign.

KEY ESTIMATES:

There were other key questions upon which we focused. They centered on Iraqi reenforcement in the west, improvement and extension of the barrier system westwardly, disposition of the Republican Guard (heavy divisions, particularly) and of the heavy divisions of the operational reserve, Iraqi preparations for chemical attack, and signs that the Iraqis might mount a preemptive attack down the Wadi Al Batin to Hafir Al Batin, a

small city about 60 kilometers in Saudi Arabia. Of course, intelligence must become more finite farther down the chain of command it goes. For example, in our assessments of the breach areas, we virtually located, identified by type, and counted each artillery tube. But the big questions for the campaign plan directed us right through G-Day.

We made several key calls in December which provided direct input to campaign plans: that Iraq had fixed its forces and would not reenforce or redispense them in any significant way; that the Iraqi defense would be positional, with counter-attacks likely by tactical but not operational or Republican Guards forces; that the Iraqi military was fixated on the defense of Kuwait City and Basrah and would not improve defensive barriers or move forces westwardly; that the Iraqis intended to use chemicals, possibly as early as at the breach areas in the front-line defenses but certainly once U.S. forces attacked the Republican Guard. We also estimated that the Iraqis would conduct two specific actions in their defense. One would be to move forces, of a few brigades in strength, to preplanned blocking positions west of Wadi Al Batin about 20-30 kilometers. Another was to reposition forces to defend Basrah. All of these estimates, except the prediction of chemical attacks, proved to be accurate.

Intelligence served a crucial role in planning the ground campaign, so important that commanders asked us repeatedly to verify our conclusions. We, of course, worked with ARCENT G-3 planners and with the Corps to develop any number of other possible enemy courses of action from which they in turn created branches to their trunk plan. We never waived, however, from our key conclusions. We also provided support in carrying out the CENTCOM deception plan which had as its core objective to reenforce the Iraqi military's preconception that we would try to seize Kuwait from the south and from the Gulf. CENTCOM's deception worked completely.

IEW LESSONS LEARNED

- o Common Themes - Grenada, Panama, Gulf
- o Quality MI Soldiers and Leaders
- o IEW Communications a Requirement
- o Imagery Architecture
- o Balanced Collection at Division & Corps
- o IEW Doctrine & Training
- o EAC Intelligence Support - 513th MI Bde
- o G2/MI Commander Relationship
- o The EAC Brigade Concept for Contingencies
- o Army Operations Require Army Intelligence
- o MI Reserve Forces

IEW LESSONS LEARNED:

The foregoing history describes what I believe our key challenges were and how we met them, at least from the position of G-2, 3rd U.S. Army. Now it seems appropriate to describe what we learned from all this. After DESERT STORM, we set about to capture the many lessons, large and small, from the battlefield operating system called Intelligence and Electronic Warfare. We gathered input from the ARCENT staff, and we called on Corps and Divisions to provide us their conclusions. In mid-April we met for four days with key representatives from G-2 staffs and MI units. On the last day, we conducted an executive session with the Corps and Division G-2s, and we came to a consensus on the major lessons learned for IEW.

Before describing our IEW lessons learned, let us assess their potential worth as contributors to changes in Army doctrine, organization, training, materiel and leader development (DOTML). Certainly, DESERT STORM was a short ground war, barely 100 hours, a battle really. Therefore, some of what we did here may not apply to Army operations in other places over longer duration against a different enemy. The period of DESERT SHIELD, on the other hand, extended the time here to over six months. We discussed this at length, and we tried to separate those things which were unique to this circumstance of time and place and those which are worth full consideration because of their universal application. We started by describing the intelligence situation in which we found ourselves on the 2 August, 1990 Iraqi invasion of Kuwait. We then looked back at U.S. Army operations in the last decade—URGENT FURY, JUST CAUSE, and now DESERT STORM—and we tried to discern the threads of commonality of the ways in which the factors of METT-T bound Army operations and of the kinds of circumstances that prescribed how intelligence succeeded or failed to support. With these assessments as a baseline, we then began to formulate lessons learned from this Gulf War which, in our view, do indeed have direct applicability to our future Army.

COMMON THEMES: GRENADA, PANAMA & THE GULF:

First, let us review some common themes, at least as they impact on intelligence, about the Grenada, Panama, and Gulf operations over the past decade. They were all surprises. Though the invasion of Panama had been building for about 18 months, no one believed even a week before either Grenada or the Iraqi invasion of Kuwait that we would employ ground troops there. Even with Panama, the final shake-out of the operations plan as it was executed occurred less than a month before the U.S. action. This meant that U.S. forces deployed from numerous bases, long distances, on short notice, and into situations that

put a premium on flexibility. The implications for intelligence were that deploying units needed support immediately in the way of order of battle, terrain analysis, technical SIGINT data, enemy military materiel capabilities, and current situational intelligence, to name a few key subjects. In the cases of Grenada and the Gulf, we had thin intelligence data bases and few people who worked the area. We virtually had to build intelligence from scratch.

With the exception of the Gulf operation, deploying Army units had no smooth way to receive intelligence or to ask for collection. Theoretically, intelligence flows from DIA, through the Unified and Specified Command, to the Army component. That is not the way it works. In all three instances, the appropriate U & S Command did not have the staff capability to manage suddenly myriad, urgent war-time requirements. Moreover, since Army units work with a number of contingencies across several different joint commands, habitual relationships do not develop fully. Thus, G-2's usually send teams directly to Washington to carry out liaison with AIA, DIA, NSA, and CIA to get intelligence quickly. In the DESERT SHIELD situation, AIA stepped in to provide a single point of contact for support and for coordination with DoD and national intelligence agencies. That system worked well for the Army.

Sudden orders to deploy to areas that are generally not high priority, at least as high as a European contingency had been, cause other problems as well. In the case of Grenada and the Gulf, where the U.S. had not had a long history of presence (as in Panama) maps were not available and doctrinal communications were long-haul, fragile, and unable to support intelligence traffic. All three operations established common intelligence themes. They placed high demand on counterintelligence (particularly low level source operations), prisoner interrogation and civilian interview, and high resolution, real-time imagery.

On imagery, it was clear from each operation that commanders demanded photographs and that the Army had only a limited capability to provide them. Army imagery support is based on the premise that commanders would receive message reports of imagery, not the photographs themselves. Commanders, on the other hand, have a "Missouri syndrome" on intelligence--"Don't tell me; show me," they say, and they always will. Thus, in all three operations, commanders' expectations of imagery support were widely separated from Army capabilities to meet them. Other common intelligence areas of importance in each operation included major efforts on document retrieval and exploitation as well as technical intelligence on foreign materiel. Moreover, each operation required a special debriefing capability, for high

ranking and inner circle captives. Signals Intelligence operations also had consistent commonality in Grenada, Panama, and the Gulf. For disparate reasons, there was almost no tactical SIGINT collection. Indeed, Army tactical SIGINT linguists carried out duties as interrogators, document translators, and other assignments in demand. On the other hand, in Grenada and the Gulf, HF intercept and direction finding played a major role in the intelligence effort. Each operation was also critically short on clandestine HUMINT. In Grenada and Iraq there was next to none that contributed to the military operation.

Deployment of MI units also bears similarity in the three operations. Intelligence units tended to deploy well after combat elements. This was not so crucial in Panama, which had U.S. bases and Army intelligence organizations there. In Grenada, it caused serious difficulties, for example, in handling prisoners. In the Gulf War, it brought in echelons above corps intelligence units and capabilities virtually after the Corps required intelligence product.

What can we say about these themes? Are they the unique product of some limited actions which bear little relationship on how the Army might operate in the future? I do not believe so. It appears that these three experiences of the last 10 years portend more about what the Army will face than what it will not. In the next several years we will likely become a centrally based Army in the United States. We will have some forward presence, for example in Europe, Korea, and to a very limited degree in the Gulf. However, any significant employment of the Army will see forces projected from the center (read the U.S.A.), not unlike the three operations we carried out over the past decade. Moreover, with global trends as they are, our singular focus will not be the Soviet Union. In fact, we will not have a geographical focus or even a concentration on one "model" enemy or his surrogates. Instead, there will be a high premium on flexibility and on our ability to use high technology and to overmatch potential foes, in strategy, deployment, tactics, and technology. This means we will have to prepare ourselves better to provide intelligence (and related) support over disparate areas of the globe. We need a broader base of intelligence on many areas of high political and economic interest to the United States instead of deep data concentrated in a few areas. On the operational and tactical levels, we need to put emphasis on dissemination downwardly through Army units and on maximum flexibility in our MI structure and training.

The lessons learned from DESERT STORM were developed with the backdrop described above in mind. They are not the result of experiences of 100 short hours. On the contrary, they have

import and potential impact on the Army of the future. What follows, therefore, are MI lessons learned from the 3d U.S. Army perspective and agreed upon by Corps and Division senior intelligence officers. We do not mean to imply that the Army may not be already moving in the direction to address what we describe here. In fact, in many ways these are really lessons relearned, but we state our views clearly and forthrightly, with the conviction of those who have participated directly in a significant historical event.

QUALITY SOLDIERS AND LEADERS:

Army Intelligence was an overall success in DESERT STORM largely because of our high quality soldiers, who performed magnificently at all echelons. Our success here reflects the rigor and sophistication of a mature military intelligence training program and doctrine. Commanders at all levels have said they were consistently pleased with the performance of their G2's and S2's. Notably, Captains filled over 90% of battalion level S2 positions--their experience, professionalism, and high degree of technical competence paid great dividends. This emphasis on maturity at combat maneuver battalion S-2 positions is crucial in war, but it is vital in peacetime as a means to train the unit and its leaders on MI as a battlefield operating system. Divisions G2's know their profession and their ability to lead complex intelligence operations and support combat commanders with detailed, tactical intelligence attests to that. Not surprisingly, MI women soldiers and officers performed superbly throughout the battle. G-2's and CEWI Commanders unanimously recommend opening more MI positions in divisional units to women, namely combat maneuver battalion S-2.

IEW COMMUNICATIONS:

Army IEW requires its own communications system. That system needs, of course, to be based on the three R's: rugged, reliable, and redundant. It also must include embedded communications in every system in which we can do that. Intelligence comes from a vast complex of sensors and reports and from multiple layers of command. It must arrive on time, or it is useless. The Army has learned that principle through countless exercises and through actual deployments. In Grenada, for example, intelligence reports from CINCLANT did not arrive at the 82d Airborne Division until 30 October, seven days after deployment. The reason: the Division did not have hard copy intelligence communications capability until then. Early in DESERT SHIELD it became obvious and imperative that the XVIII Airborne Corps develop an IEW communications capability. The Army area communications system could not support intelligence needs. The Corps set about building an IEW communications

network with STICS satellite radios, GOLDWING HF radios, and TENCAP links. Later, as VII U.S. Corps arrived, it was clear that ARCENT required a Field Army IEW communications system. It was during the latter period (December-February) that we developed the architecture and fielded the many systems, like TROJAN, that succeeded so well. This is an idea whose time has come.

IMAGERY ARCHITECTURE:

The Army needs to develop an imagery architecture to provide near-real time photography to commanders from Corps through Brigade. Commanders will not accept message reports of imagery read-outs. They want photography. This would include a menu of capabilities such as fielded in DESERT STORM from satellite receive terminals for national imagery, to reproduction and dissemination elements for theater photographs, to the UAV. In this effort we need to consider improving electronic dissemination capabilities in clarity and in the ability to reproduce imagery, methods to provide wide-area, high resolution imagery, and means to disseminate hard copy imagery. We must look at our EAC imagery processing capabilities to ensure they receive adequate resourcing and, more importantly, work more closely with Corps to train to tactical needs. Certainly, the UAV proved itself as an invaluable tactical collector here--even with its limitations as a prototype. The Corps and Divisions want UAV's now and an accelerated fielding program would have positive returns in training, confidence, and readiness.

On another aspect of imagery, the Army needs to emphasize the requirement for a wide area, high resolution imagery capability. There was none in DESERT SHIELD/STORM, and it hurt us. We could not maintain continuity on enemy disposition. At times, there were days when we did not know whether the Republican Guards had moved. This was so because national imagery, being a finite resource, was tending to higher priorities at the time, and in any case, national imagery does not have the capability we recommend here. The SR-71 did have it.

One final point of imagery, commanders feel more confident when their own intelligence staffs have a hand in processing it, since questions and answers can be asked and answered at the level of command that is responsible for a specific operation. Here in DESERT STORM, several Divisions and both Corps did some of their own imagery processing, and that helped response time and trust--a crucial ingredient in the commander-G-2 relationship. In sum, the single weakest MI capability in terms of getting product into the hands of tactical commanders is IMINT. We need to make short as well as longer term fixes.

JSTARS:

The Joint Surveillance and Target Attack Radar System was the single most valuable intelligence and targeting collection system in DESERT STORM. JSTARS came here as another prototype, and when it was needed, it was there, in bad weather and during longer hours daily more than anyone had predicted. JSTARS was instrumental in making every "key read" during the ground war. It showed the lack of enemy movement just before the attack. It told us precisely where operational reserves would set up their blocking positions. It gave the first and continuous signs of Iraqi withdrawal from Kuwait and was the target development instrument we used for the Air Force attack of fleeing Iraqi convoys on the main road north of Al Jahra. JSTARS showed the Republican Guards heavy divisions establishing their defense of Basrah. There was other intelligence on all of this, but JSTARS was absolutely instrumental. As we understand it, current doctrine calls for JSTARS ground station modules at Corps and Divisions. We suggest that the field Army should also have GSM capability. In a multiple Corps operation, JSTARS supports the commander's need to synchronize the field Army battle.

One issue brought up in the employment of JSTARS and the UAV concerned whether they are targeting or intelligence (read situational development) assets. The Air Force continually claimed that JSTARS was actually a targeting system, and since their aircraft would attack the targets, the Air Force should retain control of JSTARS. This was not an academic issue. The JSTARS could "zoom-in" on targets using synthetic aperture radar, or it could look at the entire battlefield using its side-looking radar. The latter, for example, told us whether Iraqi units were moving or not and, if they were moving precisely where and in what vehicular strength. The former allowed us, then, to focus accurately on those vehicles in order to determine their disposition for attack purposes. So JSTARS, to the Army, truly served its original purposes. It provided a full view of the enemy situation, and it allowed us to select the key targets (like units moving to blocking positions in the path of the main attack) for attack. Since we almost always cannot attack all targets, the function of situational development is crucial to target selection. We need to ensure this message is clearly read and understood.

VII U.S. Corps employed the UAV and found it useful for targeting. VII Corps employed air and artillery strikes based on UAV imagery, a most successful employment of the system. The conclusion from VII Corps, therefore, is that the UAV is a targeting capability, not an intelligence asset. Since this was the first time use of the UAV by U.S. Army forces, it is probably better to proceed carefully before we make the UAV

uni-dimensional. For starters, it has broad potential for a menu of tasks to include target development, cross cueing intelligence collection, developing the situation, and identifying specifics of an enemy force which the commander may want to attack later in his scheme of maneuver. Finally, the overall question of targeting vs. intelligence seems to be a moot one. Target development and validation is intelligence. It is also part of and drawn from situational development. Therefore, the use of and results from collection systems like JSTARS and the UAV depend upon the Commander's priorities and METT-T. We simply do not have enough collection systems to relegate them to one specific function.

BALANCED COLLECTION CAPABILITY AT DIVISION & CORPS:

We need to balance intelligence collection capabilities at Corps and Divisions. I know we are headed in that direction, but it cannot come soon enough. The MI Battalion (CEWI) idea at division is a good one, but it raises doubts since CEWI's contributions to URGENT FURY, JUST CAUSE, and now DESERT STORM were significantly less than expected. That is so because the units are too heavy in SIGINT, too light in HUMINT, and lack an IMINT capability. Our current MI plans to change CEWI are good ones. We must ensure there is a good mix of capabilities that are designed to maintain technological overmatch and to give CEWI more collection flexibility.

IEW DOCTRINE & TRAINING:

The basics of IEW Doctrine are sound, but some areas need refinement. Specifically, we developed a means to focus all intelligence efforts on specific commander requirements which emanated from the ground campaign plan. The IEW Synchronization Plan provided a means to attain the goals for intelligence as described in Airland Battle. We believe the Plan is worthy of consideration as a model for tactics, techniques and procedures. It goes beyond a simple chart that matches requirements with collection assets, and it is much more than a collection plan. It is, in fact, a methodology that links all intelligence functions of the cycle to an end result, an intelligence assessment, specifically tailored to a Commander's requirement and delivered at the time of his choosing.

IEW Synchronization meant that at field Army, we focused intelligence downwardly and had to support levels of command well below our own. Commanders at each level required a much finer grain of tactical detail on enemy composition, disposition, and strength than our manuals expect. Corps wanted company, and even platoon positions. This was so largely because of concern throughout the chain of command over U.S. casualties. Thus, at

3d Army, we developed collection and analysis teams dedicated to each Corps and to the coalition Corps. These teams worked at 1:50,000 scale maps to produce intelligence of fine tactical detail--down to artillery gun-tube. We believe this emphasis on detailed intelligence will become the norm, and we have to plan on it. It holds implications for structure, architecture, and doctrine, itself. We need to assess this issue and address it in every forum. If we do not, there will be a gap between doctrinal and real command expectations of MI.

The IEW Synchronization Plan served our purpose in DESERT STORM because of the inherent nature of the operation, itself. DESERT STORM was a fast tempo offensive operation, characterized by units being held well back from the enemy before the attack, deception, quick, continuous movement, and a need for highly detailed knowledge of the enemy. That kind of operation required tactical intelligence to flow downwardly. It also required close, continuous synchronization with the field Army G-3 plan of maneuver and fires. Under normal, doctrinal circumstances, G-2's support their own commander with product and subordinate commanders with collection. In DESERT STORM, the field Army focused nearly all intelligence collection and production on Corps and Division needs. This meant that MI people had to think and to be organized to provide tactical intelligence to echelons well below their own. This top-down aspect of the fast offensive that was DESERT STORM meant that aerial collection with downlinks to tactical commands provided intelligence flexibility and coverage not available from ground-based systems that had to keep pace with attacking forces. Additionally, once the basics of the DESERT STORM plan emerged, they formed a foundation upon which we developed the IEW Synchronization Plan. Due to limits of terrain, enemy capabilities, and the other factors of METT-T, there were only so many options open to enemy commanders. Thus, the IEW Synchronization Plan, with its inherent flexibility, served as the primary intelligence operations plan to carry out top-down intelligence support in this major offensive operation. We are not sure how much impact this operation and the characteristics of intelligence support should have on overall doctrine. We are convinced that the offensive conducted here caused us to employ a very different approach to tactical intelligence than described in current Field Manuals.

Another aspect of doctrine worth a careful relook is analysis. Commanders consistently claimed that much of their intelligence from their own staffs tended to be history or specific facts without a predictive element that described what it all meant and what the enemy would do. This is not a new critique of intelligence, and in some ways it results from the interaction between a commander and his intelligence officer. If the commander discourages analytical comment, human nature tends

to make the S-2 more cautious and to rely therefore on reporting fact without providing his best assessment of meaning. That aside, I also noted the tendency by MI analysts to track specific occurrences, post every detail, but not try to develop a whole picture. We had a few, gifted analysts who understood the distinction between analysis--separating things into parts--and synthesis--making a meaningful whole out of disparate parts--but these people were naturals. They just thought that way. The majority of our all source analysts tended not to venture beyond individual details. As we worked with them and showed them how to draw profound meaning from a series of seemingly minor and distinct acts and facts, they began to develop the ability to synthesize. We also ensured that every intelligence analyst (collection and dissemination soldiers, as well) knew the ground campaign plan and the Corps situations. We trained them on the IEW Synchronization Plan and the importance of each deliverable intelligence assessment and why it was crucial and urgent. This helped bring meaning to the analysis and all other intelligence operations. It particularly made the intelligence analyst part of the entire operation. What we did and what we say here about analysis is not new, but it bears attention. We should review how we train S-2's and analysts to emphasize the assessment and estimative ends of their work.

MI has emphasized doctrine and training on the very complex and difficult task of collection management over the past decade, and that paid off here. We relearned some key lessons on RFIs (as described above) and especially on linking collection with production. The IEW Synchronization Plan made us assess each detail of collection platform capability to determine acquisition and processing times, production steps and dissemination challenges. Moreover, we knew precisely what we wanted, and we knew the limitations of each system. We did not have the luxury, as often happens in exercises or peace-time, to throw assets over an area and vacuum everything up, leaving it to the analyst to sort out answering a requirement. We had to bring collection and production together in the same effort. This worked at field Army. It probably would work at Corps. Its applicability at Division, Brigade, or Battalion remains a question. Nevertheless, we learned much about operational employment of intelligence collection, and our lesson bears application in doctrine and training.

We learned that including the Technical Control and Analysis Element within the Intelligence Center served intelligence well. The XVIII Airborne Corps did this as well, and their operation benefited from it greatly. We suggest that a review be made to determine whether TCAE/IC colocation is appropriate at Division level and whether integration (vice colocation) should be done. We lean in the latter direction, but this topic needs full analysis.

This leads to another implication: cross training. MI is doing a great deal to cross train soldiers in functions related to their core specialty. In our experience here, an all source analyst and SIGINT traffic analyst could each do the other's work. Moreover, there is potential for an interrogator and SIGINT intercept operator to serve each other's roles.

EAC INTELLIGENCE SUPPORT - 513TH MI BRIGADE:

Echelon Above Corps, theater field Army intelligence played a crucial role in DESERT STORM. The 513th Military Intelligence Brigade performed magnificently and its capabilities were absolutely instrumental in the success of this effort. The one irony was that the Brigade, with its capabilities to support field Army, was not allowed to deploy until late in DESERT SHIELD. That aside, its operations were the glue that cemented 3d Army's MI efforts. The 513th MI proved the EAC MI Brigade concept fully. First, the Brigade became a full extension of the 3d Army G-2 operation. The EACIC became totally integrated with the G-2 staff and functioned as a major operations element of the field Army, directing intelligence collection, apportioning intelligence assets, and disseminating intelligence product. The Brigade provided robust liaison elements to every component and major Army command in theater as well as CENTCOM. This provided a significant capability to G-2. For example, the 513th's Intelligence Support Element at AFCENT numbered nearly 20 officers and NCO's. They were absolutely instrumental in the air campaign not only in helping develop targets but in providing direct, real time input to dynamic targeting also. These ISE liaison teams helped units sort out dissemination, production, and collection problems. They kept G-2 abreast of issues and helped guide us to address them before they became unmanageable.

The 513th's SIGINT and EW operations were superb. They proved the value of HF intercept and DF in support of Corps, something which should be developed as a modern capability at field Army and perhaps Corps level. They also employed EW to great advantage for disruption and intelligence. The Sand Crab System worked excellently.

Probably the major highlight of the Brigade's SIGINT operations was the TCAE. It oriented analysis downwardly and focused technical support on tactical units. TCAE analysis, especially, provided a precise means for target development of enemy C² and key tips on enemy disposition. Perhaps most refreshing, the TCAE produced intelligence that was written in terms tactical commanders understand. Moreover, the TCAE, as with the EACIC, kept open lines of communication with higher and lower. It solved problems, not caused them. The 513th's was the best SIGINT operation I have seen, and it contributed in a major way to DESERT STORM.

Joint Interrogation Facility operations also ran like clockwork. The 513th planned and coordinated JIF operations with the Corps, MP Command, and Engineers early on, and their efforts paid off. Intelligence reports from line crossers and captured prisoners before G-Day described an accurate picture of what we came to learn of Iraqi military will and capabilities. During the battle and later, the JIF's provided invaluable insight into the Iraqi Army. Again, the 513th set the standard for interrogation operations. The 513th MI Brigade, of course, ran all counterintelligence, document exploitation, and technical intelligence (read captured enemy materiel) operations in theater for the Army (and in the latter two cases, for CENTCOM). These aspects of the 513th's performance here were also well done. I will let the details of them be included in other write-ups of lessons learned.

G2/MI COMMANDER RELATIONSHIP:

Finally, it is clear that having an MI unit with commander and staff working in support of G-2 is a doctrinal tenet that MI must hold. The G-2, in his role as senior intelligence officer for the Commander, must have the freedom to direct, manage, produce, analyze, program, and staff. It is the MI unit commander who trains, task organizes, and implements. Before and during DESERT STORM, we in 3d Army G-2 (like everyone else) had myriad requirements. We met them largely because of the responsiveness and ability to respond of the 513th MI Brigade.

THE EAC BRIGADE: A CONTINGENCY FORCE MULTIPLIER:

During this operation, the EAC MI Brigade became what doctrine intended it to be: the key MI capability at Army level. Corps and Divisions looked to the Brigade for intelligence support and came to trust the unit fully. There were many reasons for this including the fact that INSCOM, with its world-wide capabilities, fleshed the Brigade out with people and systems to bring its capability up to intended war-time levels. It was so also because the 513th provided value-added to warfighting commanders. In fact, commanders did not look upon the EAC MI Brigade as Echelons Above Corps. To them, the unit provided invaluable operational and tactical intelligence. There is a major lesson for MI in this, and specifically for how the 513th takes on its mission once redeployed to home base. Mature manning, real-world production and collection, and focus downwardly through habitual, close ties with Corps are ingredients that will provide continued credibility and relevance to this EAC Brigade. If the 513th takes on a wider contingency mission (e.g., merges with the 470th MI Brigade now focused on Latin America), this model will serve the Army and MI well.

ARMY OPERATIONS REQUIRE ARMY INTELLIGENCE:

Another major lesson is that Army Intelligence was absolutely required to support Army operations. While we operated fully under the joint command and in fact supported CENTCOM in every way, there was no substitute for Army intelligence soldiers in Army MI organizations supporting Army combat commanders. By organization, training, inclination, institutional culture, professional experience, and intuitive knowledge, Army G-2's, MI unit commanders and their subordinates understood ground combat operations and the intelligence requirements thereof. From another perspective, it was also true that the S-2/S-3 (or G-2/G-3) team at each Army level of command sought and found the synergism so crucial to ground combat operations. This means to me that trends toward centralizing intelligence at joint levels are precisely opposite of what we experienced here. What commanders demanded was control over their own destinies, with tailored tactical intelligence from experienced professionals who knew Army operations, the intelligence exigencies that stem from them, and how to lead intelligence maneuver to support command intent. There is a vast difference between peacetime intelligence and intelligence for strategic purposes vice tactical and operational intelligence in support of commanders who have to make decisions that affect soldiers lives and the outcome of battles. In our effort to "reduce duplication" by centralizing intelligence at joint levels, we cannot at the same time eliminate crucial capability.

MI RESERVE FORCES:

There are numerous other intelligence lessons learned which we describe in our contribution to the overall ARCENT input for the Center of Army Lessons Learned project on DESERT STORM. One last comment on MI reserves deserves mention here. As described elsewhere, reserve linguists served well here. We also activated numerous reserve officers and soldiers who served admirably in their MI occupational specialities. With the exception of a counterintelligence unit that spent a short period during DESERT SHIELD and the 142d MI Battalion (Utah NG), MI reserve units largely played no role in DESERT STORM. There are many reasons for this, lack of readiness being the main one. Certainly, the MI Corps has made major efforts to form and provision tactical MI units in the reserves over recent years, and that strategy might still be appropriate over the longer-term. Nevertheless, we conclude from this operation that MI reservists contributed the most as individuals with special skills--linguists, regional experience, special interrogation capabilities, to name a few. Individual augmentation by reservists gave us flexibility to reenforce units with the special skills required for evolving missions. We suggest, therefore, that as our MI strategy for the reserve component.

CONCLUSION

- o IEW is an Effective BOS
- o Key Elements of Success
 - o Tactical Focus
 - o Superb Training
 - o IEW Technology--Commo, Computer Downlinks

CONCLUSION:

In conclusion, IEW functioned as a very effective battlefield operating system in support of DESERT STORM. The MI Corps came together to make that happen. Three key elements--a constant, urgent intelligence focus on tactical support downwardly, superbly trained MI soldiers, and an IEW communications and computer system--contributed to the success of Army MI here more than any other. If DESERT STORM proved anything, it showed that U.S. technology and quality service members and leaders made this war a complete victory. From the intelligence perspective, that was especially true. Moreover, the old concern that the soldier could not handle high technology was misplaced. The American soldier is more than up to that task. Technology in the form of images passed digitally to Division Tactical Operation Centers, computer links from remote reaches of southern Iraq to the nation's capital, radar images of the movement of 10-20 enemy divisions, real-time video from UAV's of enemy artillery positions and precise locations all portend the kind of intelligence capability we will need to build to meet the challenges that face the Army of tomorrow. We fielded that capability--albeit prototype and somewhat late--here in DESERT STORM. Prototypes and non-developmental items of DESERT STORM will be organic capabilities in the Divisions and Corps in a few years. These are the tools commanders and their G-2's need in the quick paced battlefield of this decade and the next century.

Aside from technology, our efforts to focus and draw from all levels of intelligence to serve the needs of warfighters helped make this operation, perhaps more than any other, an unqualified intelligence success. However, probably the most important ingredient to ensure future contributions of the Army IEW battlefield operating system is the preparation of the MI soldier and leader. Over the last ten years, MI came to emphasize tactical proficiency, doctrine, and training. Recently, the Army placed priority on quality and maturity at combat battalion S-2 positions. The years of developing doctrine, techniques and procedures, and, most importantly, well